



A Newsletter for Water and Wastewater Treatment Plant Operators!

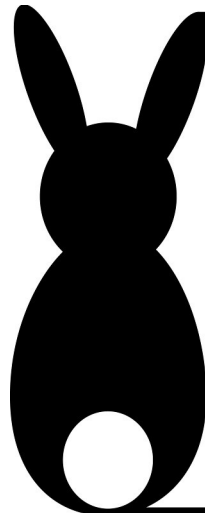
# THE WATERDRUM

April 2022

## Inside this issue:

27th Training Conference & Tradeshow	1
About Us	2
Annual General Meeting	3
AGM Winners	4
Happy Retirement Frank Gionette	5
An Operators Practical Certification Exam Story	6-10
Process to apply for First nations drinking water compensation now open	11
Recently lifted long-term water advisories	12-13
Remaining long-term drinking water advisories	
First Nation wants Ottawa to help clean up plastic waste left behind by 27-year water boil advisory	14-16
Pictures	17
Dozens of indigenous communities in Canada still lack clean water: "People are going thirsty"	18-19
Operator Math Corner-Article #1	20-22
Mamawesen, The North Shore Tribal Council & Water First Announce New Training Internship for WTP Operators	23-24

## 27th Training Conference & Tradeshow



On Behalf of AWWAO we are looking forward to seeing you at our **in person** 27th Training Conference and Tradeshow, held at the Delta Hotel, Sault Ste. Marie, June 6-9, 2022. AWWAO will be covering meals, accommodations and training costs during the conference. Our event features CEUs courses, speakers, Water Cup Challenge, Operator of the Year Award, Instructor of the Year Award, the 6th Annual Tradeshow, and an opportunity for professional development and networking opportunities.



Sponsored by: Indigenous Services Canada and First Nations Inuit Health Branch



*The meaning of the AWWAO logo as described by the artist:*

- Tree—represents Mother Earth*
- Sun—brings Life to our Environment*
- Eagle—watches over the Environment*
- Sky—ensures the Cycle of Water*

## ABOUT US

The Aboriginal Water & Wastewater Association of Ontario is an information source for water environment and Operator training and certification issues and technology. AWWAO's members include professionals from Ontario First Nations, Environmental Health Officers, Tribal Councils, Municipal Suppliers and some Government Agencies.

AWWAO is dedicated to the transfer of information and concepts regarding all areas of the water environment. As members of the American Water Works Association (AWWA), the Ontario Water Works Association (OWWA), the Water Environment Federation (WEF) and the Water Environment Association of Ontario (WEAO), we provide an invaluable network for those involved in water and wastewater industry. AWWAO, through a partnering agreement with Keewaytinook Okimakanak and Health Canada co-operates and liaises with the above noted associations, and all provincial and federal government agencies. AWWAO has a volunteer seat on many of the various association's committees.

AWWAO offers its members the opportunity to:

- ◆ Be updated and informed about issues that affect the water environment.
- ◆ Interact with persons in various fields of water expertise.
- ◆ Promote concerns of the membership through a collective voice.
- ◆ Exchange information and ideas to other members, the public and Chiefs and Council.

To date, the AWWAO consistently rank the training and certification of Plant Operators as its top priority. The attainment of Certification is widely recognized as essential to performing a good job, at a high level, in the water and wastewater treatment plant operations, and an indicator of a responsible and contributing community member.

## MEMBERSHIP

\$200.00 Membership Fee for First Nations Water and Wastewater Treatment Plant Operators per operator. This Membership entitles the Operator(s) to the AWWAO Newsletter, monthly bulletin, Annual Report and the Annual General Assembly and Training Conference cost reimbursement, if applicable.

\$400.00 Membership Fee for Non-Operator, Public Works Management, Administration and Management of a First Nation or Non-First Nation. This Membership entitles the Member to the AWWAO Newsletter, monthly bulletins, Annual Report and invitation to the Annual General Assembly and Training Conference.

Please Print

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

First Nation/Business: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

## VISION

Our Vision is to be the Association that best understands and satisfies the training, education, certification and licensing needs of Operators of Ontario First Nations. Our dedication to supporting Operators touches not only health, but safety, spirit and empowerment ... most of all knowledge.

## OBJECTIVES

- ◆ To act as a voice and forum for First Nation Plant Operators in Ontario, publish a newsletter, promote communications and networking among Plant Operators and other persons interested in AWWAO's objectives;
- ◆ Promote the importance of a safe and potable water supply and the highest standard of wastewater operations;
- ◆ Promote the development and delivery of continuing education and training programs for Plant Operators and others involved in water and wastewater treatment;
- ◆ Promote the importance of technical training in maintaining and upgrading the Operator's knowledge of proper water and wastewater operation and maintenance requirements;
- ◆ Promote the importance of involving qualified Operator's in the design, construction or upgrading of water and wastewater treatment plants;
- ◆ Promote the importance of proper training, certification and licensing of Operators;
- ◆ Promote the importance of enhanced lab testing of potable water and monitoring of wastewater effluents; and
- ◆ Promote the importance of establishing an effective Operations & Maintenance Management Plan to ensure proper care is performed for the assets.

## MISSION STATEMENT

We are a member oriented, non-profit Association, providing province-wide and year-round high-quality services and an annual forum for the First Nations Water and Wastewater Treatment Plant Operators, allowing for networking opportunities at the same time. We are committed to providing high quality information on the water and wastewater industry through the quarterly newsletter. We are dedicated to promoting, preserving and protecting the water, natural resources and environment through the education, training and networking of the Ontario First Nations Water and Wastewater Treatment Plant Operators.

Aboriginal Water and Wastewater Association of Ontario's newsletter is published quarterly by the AWWAO at Box 20001, RPO, Riverview Postal Outlet  
 Dryden, ON P8N 0A1  
 Tel: (807) 216-8085  
 E-mail: info@awwao.org

Advertising opportunities and/or submission or request of information, please contact the Association Coordinator.





AGM Winners



Chris Wemigwans from Aundeck Omni Kaning First Nation

I would like to take this time to offer my thanks' to AWWAO for allowing me to be a part of a team to better our communities by providing training and support for our first nation communities. Being a part of the AWWAO community has assisted my learning of what it means to be a water plant operator. Having won this wonderful gift, I am sure it will be an asset to my skills as a water plant operator.



Jarrett Gionette from Mississauga First Nation

Just wanted to say thank you AWWAO for the Apple Watch and for the training that helped me get my certification also it helped me understand the water plant I work at more.



*Happy Retirement Frank Gionette*



Mississauga First Nation Fire Chief and Public Works Water Operator has “Retired” with over 20 years in the MFN water system. Frank was a dedicated employee and will literally take the shirt off his back to help someone in need. He plans on milling lumber on his new portable sawmill and spending time at the cottage with family.

Wish you good luck, good health, and good fortune!





## *An Operator's Practical Certification Exam Story*

As many of us First Nation Operators are well aware, the thought of having to write or rewrite a certification exam can sometimes promote fear and anxiety that can be debilitating and even discouraging so much so that we sometimes find ourselves contemplating other career options.

As an alternative to the written certification exams, Ontario offers on-site practical certification examinations (PCEs) for experienced operators of First Nations drinking water systems. This allows experienced operators to demonstrate their knowledge and obtain provincial certification.

One such Operator who opted to do just that was Mister Craig Jourdain and this is his story.

Mr. Jourdain of Manidoo Baawitigong, also known as Rainy River First Nation, one day found himself at a cross roads and had a decision to make. Should I rewrite my WT3 exam or try the alternative offering from the Province of Ontario. Craig chose the alternative practical certification examination pathway.

For the delivery of the practical certification examinations, Ontario has partnered with the Aboriginal Water and Wastewater Association of Ontario (AWWAO) and Craig being a long-time paid member of the AWWAO used that resource to begin his journey.

Craig and his Overall Responsible Operator (ORO) followed the procedures as outlined on the Ontario Water and Wastewater Certification Office's website and submitted the application to have the practical certification examination administered to him. The OWWCO reviewed, approved and set a September 17, 2021 date for the practical exam to be given to Craig.

The exam was administered by the OWWCO Assessor on Friday September 17 at which time Craig was put to the test and had to answer sixty-five questions in writing, orally and or by demonstrating his knowledge of his treatment system.



*WT3 exam recipient – Craig Jourdain*

After a grueling 8 hours of answering questions and demonstrating his knowledge, Craig felt confident that his many years of experience as a water treatment Operator paid off and with a bit of luck and the blessing of the Creator, he may have passed the practical exam.

With Christmas right around the corner Craig waited until the New Year to receive his official letter of notice.

The First word he read upon opening the letter was "Congratulations"

Needless to say, Craig successfully passed the exam and earned himself the WT3 Certificate #C79266. From the AWWAO Membership and the AWWAO organization, Congratulations Craig Jourdain!!!



## Cont'd

The AWWAO encourages all First Nation Operators to choose the Practical Certification Exam as an alternate route to your certification. The following link directs you to the OWWCO's website location that clearly outlines the process. The following is the exact process outlined on OWCCO website.

<https://owwco.ca/practical-certification-examinations/>

### What is the Practical Certification Exam?

A practical certification examination is an oral exam, held at the operator's drinking water system and delivered by a Ministry-approved assessor with experience working with First Nations. The exam includes questions that allow the operator to answer by explaining or demonstrating how they operate their system. Exam questions are based on the processes and equipment used at the operator's system. For example, if the system does not have an ultraviolet (UV) treatment process, there will be no UV treatment questions on the exam. The exam also includes questions on general topics all operators should know (e.g., public health).

Upon successful completion of a practical certification examination, the operator will receive a Conditional Certificate that is **valid only in the First Nation community where they work**.

If the operator works in multiple systems of the same type, the practical certification examination will occur in the highest-class system. For example, if the operator works in both a Class 1 and a Class 2 Water treatment system, the exam will occur at the Class 2 system, but the exam result will apply to both facilities.

### Who can take a Practical Certification Exam?

The First Nation operator must have:

1. Completed Grade 12 in Ontario or have other qualifications that the Director considers [equivalent](#).
2. Completed the [Entry-Level Course for Drinking Water Operators](#), delivered by the Walkerton Clean Water Centre (WCWC) or through an Ontario College.

The Entry-Level Course for Drinking Water Operators for First Nations is being offered at no fee with travel and accommodation expenses reimbursed for operators in First Nations communities in Ontario. For scheduled dates and locations visit [www.wcwc.ca/en/training/first-nations-zone/](http://www.wcwc.ca/en/training/first-nations-zone/).

3. Hands-on experience at the type of subsystem on which they will be tested:

- ◆ Class 1 exam – 3 years of operating experience
- ◆ Class 2 exam – 5 years of operating experience
- ◆ Class 3 exam – 8 years of operating experience, of which 2 years must be as an operator-in-charge (OIC) in a Class 2 subsystem or higher.



## Cont'd

Rules for calculating operational experience can be found in [Guideline 3.4 – Experience as a Drinking Water Operator](#). All operating experience will be taken into account when calculating experience, including experience obtained in systems other than the system where the operator will take the practical certification examination.

4. Attempted the written exam at least once within the past 5 years and have taken an examination preparation course prior to the examination attempt.

5. Paid the required [fees](#).

6. A letter of support from the First Nation community. The letter of support may be from the plant supervisor, Chief and Council or public works manager. The letter should indicate an understanding that the operator would be conditionally certified through a practical certification examination, and that permission is given for an assessor to administer the exam within the First Nation community and drinking water system. Where the letter is not from the Chief and Council, they should be copied to indicate that they are aware of the exam.

### How do I apply?

1. Contact the Ontario Water Wastewater Certification Office (OWWCO) about taking the practical certification examination at 1-877-231-2122 or <https://owwco.ca/contact/>
2. OWWCO will follow up with you to get more information about your work as an operator.
3. OWWCO will send you a partially completed Practical Certification Examination form, together with a brief explanation of how the exam is conducted and how you can prepare for the exam.
4. Complete the application form and send it to OWWCO along with payment and the required supporting documents.

- ◆ A copy of your current (and previous, if applicable) job description (s) (if not on file)
- ◆ Proof of Grade 12 or equivalent (if not on file)
- ◆ A letter from an authorized representative supporting conditional certification through practical certification examination
- ◆ Copy of the certificate for MECP's Mandatory Entry-Level Course for Drinking Water Operators (if not already on file)
- ◆ Proof of postsecondary education and copies of education/training certificates (if not already on file)

Submit your application to:

**Ontario Water Wastewater Certification Office**

295 The West Mall, Suite 302

Etobicoke, ON M9C 4Z4

Fax: (416) 231-2107





Cont'd

Payment is required with each completed application, and can be made by Visa, MasterCard, cheque, or money order. If paying by cheque or money order, please make the payment out to the Minister of Finance.

Upon receiving your completed application form and confirming you meet the, the next available Examination Assessor will contact you and your supervisor to make the necessary arrangements and to discuss the features of your system so that they can develop your exam.

The number of practical examinations delivered each year will be limited based on the availability of approved assessors. Exams will be booked on a first-come-first-serve basis.

**Fees?**

Practical examination	\$140.00
Conditional certificate issuance fee	\$175.00*

\*Certificate issuance fee is only collected if you pass the exam

**Frequently Asked Questions**

**1. I don't have a valid certificate, but I do have experience. Can this experience be used to meet the practical exam experience requirement?**

Yes. Because participation in the Ontario Drinking Water and Wastewater Operator Certification program is voluntary for operators working in First Nation drinking water systems, experience gained by un-certified operators will be recognized.

**2. Can I take the practical exam even though I am not a certified operator?**

Yes. If you operate a First Nations drinking water system you do not need to have a certificate to be eligible as long as you meet the experience and education requirements.

**3. What should the letter of support say?**

A template letter will be provided with the application package to provide suggested wording for the letter of support.

The letter should indicate an understanding that the operator would be conditionally certified through the practical exam, and that permission is given for an assessor to administer the exam within the First Nation community and drinking water system.

**4. Can I take a practical exam more than one level above my current certificate?**

Yes. The practical exam program allows operators to take any level of exam up to the level of the highest-class system they operate, as long as the operator can meet the experience and education requirements needed to take the practical exam. For example, a class 1 operator working in a Class 3 system, can take the class 3 practical exam.



*Cont'd*

Except in special circumstances, an operator can only take one practical examination. After that, to upgrade to a higher-class certificate, the operator must take the written exam.

**5. How do I prepare for a practical certification exam?**

You will receive information on how to prepare for your exam with your application package.

The exam will be based on:

- ◆ The equipment, processes and procedures used at your system
- ◆ Basic scientific principles all operators should know
- ◆ Public health principles all operators should know

Tips to prepare for a practical certification exam:

- ◆ Review equipment manuals, standard operating procedures, system schematics and emergency plans.
- ◆ Practice your sampling and laboratory testing techniques for the types of sampling and testing performed by operators in your system.
- ◆ Review the drinking water standards and objectives used at your system.
- ◆ Review provincial and / or federal publications that apply or are used at your system.
- ◆ Review your copy of the Entry Level Course for Drinking Water Operators.
- ◆ Review training manuals from other courses you have taken in the past.

**6. How long is a practical certification exam mark valid for?**

The exam mark is valid for five years.

**7. I have taken a practical exam to get my certificate and I would now like to upgrade to a higher-class certificate. Can I take another practical examination for the higher-class certificate?**

No, except in special circumstances, an operator can only take one practical examination. To upgrade to a higher-class certificate, an operator that became certified through a practical examination must take all future exams in the written format.

**8. If I get a conditional water treatment certificate through the practical exam, do I also hold a water distribution certificate?**

No, conditional certificates are not transferrable to other types of systems. The conditional water treatment certificate will only be valid at the treatment systems where you work.

If you need a distribution certificate, you can apply to take the water distribution practical examination and the water treatment examination as long as both can be taken within 1-2 days of each other. The two examinations will be scheduled on two separate days during the assessor's visit to your community.

Written by Phil Tangie



## Process to apply for First Nations drinking water compensation now open

[Lindsay Richardson](#)

Mar 07, 2022



As of today, residents of First Nations impacted by long-term boil-water advisories can apply for compensation as part of a class-action lawsuit taking aim at the Federal government.

The [\\$8 billion First Nations Drinking Water Settlement](#), reached in December 2021, earmarked \$1.8 billion in compensation for impacted First Nations, as well as a \$6 billion commitment for construction and maintenance of safe water infrastructure in communities across Canada.

Any First Nation member who lived in a community affected by a boil-water advisory lasting more than a year between November 20, 1995 and June 20, 2021 is eligible for compensation.

Compensation amounts, however, will vary according to the circumstances of the drinking water advisory, such as the “nature of the advisory, the length of residency, and the remoteness of the First Nations Lands,” according to a press release.

People who have suffered injuries or long-term health effects linked to a lack of clean drinking water on-reserve are also welcome to apply.

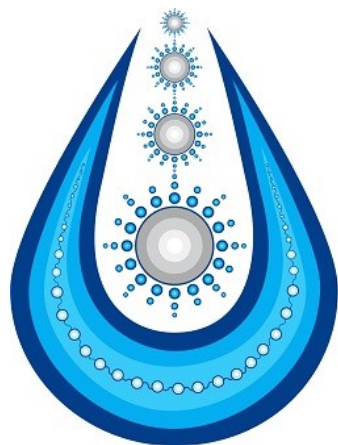
The class-action process was initiated jointly by Neskantaga First Nation, Curve Lake First Nation and Tataskweyak Cree Nation back in 2019.

Indigenous Services Canada (ISC) data indicates there are at least 29 communities across Canada still operating under a boil-water advisory in 2022.

According to ISC’S website, at least 128 long-term drinking water advisories have been lifted since November 2015.

The federal government has acknowledged the on-reserve drinking water problem as “complex,” indicating it can take up to three or four years to complete a new water treatment system.

To file an individual, or representative claim online, visit [www.firstnationsdrinkingwater.ca](http://www.firstnationsdrinkingwater.ca).



# First Nations Drinking Water SETTLEMENT





## *Recently lifted long-term water advisories*

### **Ojibway Nation of Saugeen as of February 16, 2022**

The long-term drinking water advisory affecting Ojibway Nation of Saugeen's Health Clinic Semi-Public Water System has been lifted, effective February 16, 2022. The advisory, in effect since April 2018, was lifted following the installation of a new well and point-of-entry treatment system for the clinic. Testing has confirmed that the system produces water that meets all drinking water guidelines. Operational supports are provided to the community through the ISC-funded Centralized Water and Wastewater Hub delivered by Ontario First Nations Technical Services Corporation. In January 2022, the community lifted the long-term drinking water advisory on their school water system.

### **Ojibway Nation of Saugeen as of January 24, 2022**

The long-term drinking water advisory on the Ojibway Nation of Saugeen's School Water System was lifted on January 24, 2022. The advisory, which had been in effect since April 2018, was lifted following the installation of a new well and construction of a point-of-entry treatment system for the building. Testing has confirmed that the system produces water that meets drinking water guidelines.

### **Mohawks of the Bay of Quinte First Nation as of December 21, 2022**

Mohawks of the Bay of Quinte First Nation (MBQ) in Ontario has lifted 2 long-term drinking water advisories. The advisories affected the MBQ Airport Public Water System, which had been in place since October 2003, and the MBQ Clifford Maracle's Well Public Water System, which had been in place since 2012. The long-term drinking water advisories were lifted after the homes and buildings were connected to the First Nation's water distribution system and the existing wells were decommissioned.

### **Mississaugas of Scugog Island as of December 15, 2021**

Four long-term drinking water advisories on the Mississaugas of Scugog Island water treatment systems in Ontario were lifted on December 15, 2021. The advisories, in place since October 2008, were lifted after a new water treatment plant was built and extensive upgrades to the water distribution system were completed. The new plant and distribution system upgrades support the community's current and long-term drinking water needs. The water produced by the system meets the applicable drinking water guidelines. Now, 49 homes along with the community's Health Centre, Band Office and other buildings now have reliable access to safe drinking water.

### **Wabaseemoong Independent Nations as of December 6, 2021**

The long-term drinking water advisory affecting the Whitedog Public Water System in Wabaseemoong Independent Nations has been lifted, effective December 6, 2021. The advisory, which had been in effect since August 2017, was lifted following the completion of upgrades and repairs to the water treatment plant and distribution system. Performance testing was completed successfully and the system is producing water-meeting applicable requirements. Operational supports are provided to the community through the ISC-funded Centralized Water and Wastewater Hub delivered by the Bimose Tribal Council.



## Recently added long-term drinking water advisories

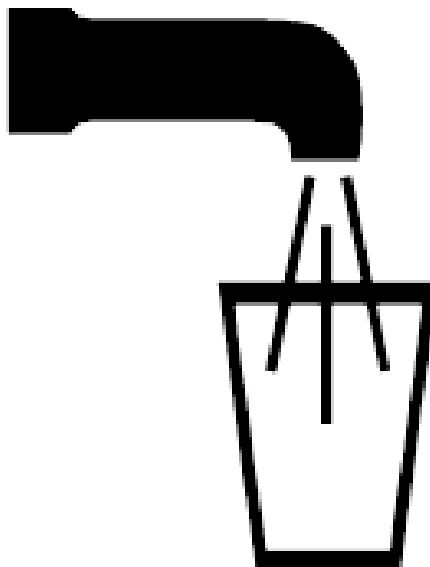
### Mishkeegogamang First Nation as of January 7, 2022

A drinking water advisory in Mishkeegogamang First Nation in Ontario on the New Osnaburgh Water Treatment System became long-term on Friday, January 7, 2022. The advisory was put into place in January 2021 as a result of inconsistent plant and water quality monitoring. An assessment of the plant also identified some necessary repairs and upgrades to the treatment process. and Indigenous Services Canada has approved funding to support the upgrades to the plant. The work is scheduled for completion in March 2022 and will meet the immediate drinking water needs of the community, while the design and construction of a long-term solution is implemented.

## Remaining long-term drinking water advisories

### Ontario

Anishnaabeg of Naongashiing  
Bearskin Lake  
Chippewas of Georgina Island  
Chippewas of Nawash First Nation  
Deer Lake  
Eabametoong First Nation  
Gull Bay (Kiashke Zaaging Anishinaabek)  
Marten Falls  
Mishkeegogamang  
Mohawks of the Bay of Quinte  
Muskrat Dam Lake  
Neskantaga First Nation  
Nibinamik First Nation  
North Caribou Lake  
North Spirit Lake  
Northwest Angle No. 33  
Ojibway Nation of Saugeen  
Oneida Nation of the Thames  
Sachigo Lake  
Sandy Lake  
Wawakapewin



## First Nation wants Ottawa to help clean up plastic waste left behind by 27-year water boil advisory

Neskantaga has relied on plastic water bottles and jugs to ensure safe drinking water for 27 years

[Olivia Stefanovich](#) · CBC News · Posted: Feb 02, 2022

A remote northern Ontario First Nation wants Ottawa to help it find an environmentally responsible way to dispose of the thousands of empty water bottles that have piled up over 27 years under a long-term drinking water advisory.

Neskantaga, a fly-in Oji-Cree community with approximately 300 members located about 450 kilometres north of Thunder Bay, Ont., marked a grim milestone on Tuesday — the longest drinking water advisory of any First Nation.

"It shouldn't be like that in a country like Canada," Chief Wayne Moonias said.

Like many other First Nations, Neskantaga does not have waste pickup or recycling. Most of its garbage, including plastic, is incinerated or ends up in a dump.

Ottawa sends weekly water shipments to the community but doesn't bring back all the used plastic bottles.

Moonias said that with its lack of potable water, crumbling infrastructure and high rate of suicide, Neskantaga has too much on its plate right now to deal with plastic waste.

"It's a concern for our community because we all know that we need to do something to protect the environment," he said.

"The community cannot do it alone because the community is spending their efforts and energies on trying to address the well-being of our community."



*A child carries jugs of bottled water in Neskantaga First Nation. (Submitted by Marcus Moonias)*

In the last federal budget, Ottawa set aside \$560 million over seven years for solid waste management projects in First Nations. But there is still no federal plan to address plastic waste in communities.

Some First Nations, including Neskantaga, are calling for that to change.

They say they want Ottawa to work with them to curb plastic waste in First Nations, especially plastic waste generated by drinking water advisories.





Cont'd

**'We need to do better'**

"We are hurting our land by dumping all this plastic when we could be doing something about it," said Charla Moonias, a 24-year-old Neskantaga member who grew up on bottled water.

"We need to do better for our future generations."

She said she would like to see workers hired to sort out recycling and ship plastic waste out on aircraft or winter ice roads.

Bearskin Lake First Nation, a fly-in community of roughly 400 people located 600 kilometres north of Thunder Bay, also wants to change the way it handles plastic waste created by more than two decades of a drinking water advisory.

"There's no such thing as recycling up here in the community," Chief Lefty Kamenawatamin said.

Indigenous Services Canada has a First Nations Waste Management Initiative to help develop sustainable waste management systems. The department told CBC News it has spent \$384,000 since 2019 to support a community-led solid waste management planning project for Neskantaga for storing and handling plastics.

In 2021, it also gave \$137,000 to Matawa Tribal Council to fund a full-time solid waste coordinator position to help all Matawa First Nations, including Neskantaga and Bearskin Lake, with waste management strategies.



*Chief Lefty Kamenawatamin of Bearskin Lake First Nation, 600 kilometres north of Thunder Bay, Ont., said his community doesn't have a recycling program so all of its plastic ends up in the trash. (CBC)*

**Alternatives and prevention needed, professor says**

But plastic recycling doesn't have a good track record, said associate professor Shirley Thompson of the Natural Resources Institute at the University of Manitoba in Winnipeg.

"We have to see alternatives and prevention," Thompson said.

Thompson said the burden of reducing plastic waste should fall on retail stores operating in northern and remote communities, including Neskantaga.

They could start deposit-return programs for people to return water bottles for a small refund, she said.



*Cont'd*

"Having a federal regulation that requires it will result in better follow-up," Thompson said.

For far too long, Thompson said, Ottawa has pushed waste management in First Nations down the priority list.

She researched waste management in more than a dozen First Nations and found that many have landfills that are not at a safe distance from roads or rivers, which can put them at risk of contamination.

She also said First Nations communities, including Neskantaga, often burn their garbage, generating toxic chemical waste.

"This is a necessary evil in the fact that they don't have money for covering up the landfill on a regular basis," she said.

"This is a result of policy. There is not sufficient funding for waste."

Environmental Defence Canada is also calling on Ottawa to end the long-term boil water advisories that cause mounting plastic waste.

"The federal government needs to throw in all of their efforts and resources that they can behind addressing this issue," said Michelle Woodhouse, program manager for freshwater protection and the Great Lakes at Environmental Defence Canada.

**No word on when Neskantaga's advisory will be lifted**

The ultimate solution for Neskantaga would be to lift its boil water advisory. Chief Moonias said he can't offer a timeline for ending it.

Indigenous Services Canada spent \$20.9 million to update the community's water treatment plant and another \$4.1 million for related wastewater system upgrades. The water treatment system upgrade is complete.

But there is still some work to do to address problems such as leaks, and to make sure the upgrade works with the aging distribution system.

A 14-day performance test was scheduled for Jan. 10 but was pushed back due to the pandemic. Moonias said he hopes it will begin in the next month or so.

"The faith and trust in the system is very low right now," Moonias said. "Our community has suffered far too long."



Pictures



Hannah Fredericks participated at the Exam Prep in Sudbury, Ontario (Moose Deer Point First Nation)



Darrin Migwans from Atikameksheng Anishnawbek First Nation

Hi,

I like to thank AWWAO and staff putting on an excellent training week, wrote the exam and passed receiving my water distribution and supply level 1, thanks to Ken our trainer that week, surprised to win the watch, thanks again AWWAO.





*Dozens of indigenous communities in Canada still lack clean water: “People are going thirsty”*

1 February 2022



Indigenous First Nations communities in Canada have been grappling with the issue of poor, dangerous water quality for decades, impacting tens of thousands of people. Despite government promises to improve water treatment plants, dozens of native reserves across Canada still lack clean drinking water. Our Observer, who lives on the Tyendinaga Mohawk Territory in Ontario, has turned to TikTok to raise awareness by posting videos of the brown, dirty water coming out of the taps.

When Brennen McGuire, who uses the username [@slapppps on TikTok](#), turns on the sink at their home on the [Tyendinaga Mohawk Territory](#), the water that comes out is brown and murky. This is the case for nearly 90 homes on the reservation which are not yet connected to a new water treatment system.

**‘I remember running a shower and just black water coming out of the showerhead’**

McGuire’s advocacy journey began after a video he took in January 2021 showing black water coming out of their laundry room sink received a lot of attention on TikTok.

*My primary goal is just to raise awareness of the water crisis that plagues indigenous communities, and I try to do it through an entertaining outlet. I’m indigenous, but I was raised in a very colonised household, so I never really knew about all of these issues, because they’re not taught in school. I’ve been an advocate my entire life, so I decided that people need to know about this.*

*I moved into the property that I live on now about a year and a half or two years ago. I remember telling my roommate ‘The water doesn’t smell too good, it doesn’t look great either’. I remember running a shower and just black water coming out of the showerhead. She told me that the reserve had been on a long-term boil advisory since 2008.*



## Cont'd

The Canadian government issues “drinking water advisories” to communities whose water is not safe for consumption. The alerts are split into three categories, warning residents either to boil water before consumption, not to consume it, or not to use it at all. Advisories are considered “long-term” when they’ve been in place for over a year.

Tyendinaga Mohawk reserve isn’t the only indigenous reserve lacking clean water. There are currently 36 long-term water advisories in place affecting 29 indigenous communities across Canada as of January 25, 2022. The water in

Poor water quality in First Nations communities can be traced back centuries when French or British settlers [pushed indigenous communities](#) into areas with inadequate water supply. The problem [has persisted](#) due to poor infrastructure and lack of funding and water regulation on native reserves.

The federal government in Canada holds the responsibility for fixing these problems, due to colonial-era laws that prohibit indigenous communities from managing their own water systems. The Canadian government has been working to make repairs, managing to lift [127 long-term drinking water advisories since November 2015](#), when current prime minister Justin Trudeau took office.

While campaigning for his position in 2015, Trudeau [promised to end the problem](#) of unsafe drinking water in First Nations communities within five years. Although progress has been made, dozens of native reserves still lack reliable access to clean water – and for some of them, the problem has been around for decades. The 374 residents of the Neskantaga First Nation in Ontario have lived without safe drinking water since 1995. The residents of Shoal Lake 40 finally go clean water in September 2021, after [spending 24 years under a drinking water advisory](#).

### **‘To make sure it’s safe, we add bleach to the water’**

McGuire expects to be integrated into a recently funded water distribution system in Mohawk Territory within the next three years. Until then, they managed to adapt without clean water in the taps:

*We are privileged in the sense that to wash our hands and shower, we use the water in our taps. To make sure it’s safe, we add bleach to the water. That, unfortunately, has other effects on your skin. And if our water was undrinkable before, it’s definitely undrinkable now. But to make sure we can shower, wash our dishes, and do all the things that normal people can do, we have to put bleach in our filtration system.*

*We are also very privileged to have affordable water [for drinking] that we can go and buy. We have multiple stations of drinking water facilities where we can fill up jugs to put on a water cooler.*

### **‘It’s the sense of the government not caring about our people’**

But not all indigenous communities are close to cities or water treatment facilities. Some native reserves are only accessible via plane, making shipping in water supplies even more difficult.

*There are reservations in Canada up north that are fly-in reservations. Resources get very expensive for them. A case of water could run anywhere from like 40 to 90 dollars [28 to 63 euros] for them for a pack of 20 bottles of water, which is absurd. We have to make those products affordable for them, but also work towards a solution so that they don’t have to purchase water from a store.*



## Operator Math Corner Article #1 – Unlearning Math

### Operators Math Corner

By Hany G. Jadaa; C.Chem., M.Sc. Eng.

LEXICON Environmental Consulting Services Inc.

Hello everyone, and welcome to the first of many articles to come in the new “*Operators Math Corner*” series. Did I say that dreadful and frightful word? Math? Ahhh....

First, allow me to introduce myself. My name is *Hany Jadaa*. A few of you may know me through my participation at the WEAO Conference for the last 10 or so years (yes, I am the guy who’s been writing all those onerous process challenge exams that you may have heard about). Others may know me through some of the grueling training sessions that I have inflicted upon you in the last 28 or so years I’ve been working as a water & wastewater process consultant and trainer in this business.

Now you are probably wondering... “*why math*” and “*why a math corner for operators*”. Good question. In order to address this, allow me to ask a few questions. Have you ever had any trouble passing MOE certification exams because of math problems? Have you ever encountered any difficulty understanding math questions (what are they asking me to do here)? Did you grow up with the “English” system of units and now have trouble switching over to the “metric” system? Do you get involved in process troubleshooting and optimization tasks in your plant and have to deal with some complex mathematical relationships? What about those wonderful formulas that have been programmed by others on your computer – did you ever have any trouble deciphering them and wondering where they came from? Do you even trust them in the first place?

If you’ve answered yes to any of the above questions (except for the very last one), then this series of articles is for you. My intent is to eliminate the mystery behind math; to make math your friendly tool, a tool that will help you tackle math-related questions on MOE exams with ease; to make math a welcoming tool for dealing with various formulas and units of measure; and to make math a pleasant companion to troubleshooting and optimizing your plant with little difficulty, if at all.

Having said that, this first article will be about the “*un-learning*” of math, that is “*un-learning the bad habits*” of working with and solving math problems. After all, who among us do not have any bad habits when it comes to math?

Let us look at the 3 Golden Rules of working with math problems.

**Rule #1 – *Never ever do math in your head.*** What this means is – whatever thinking process you go through in your head, always write it down on a piece of paper rather than just thinking it in your head. Writing things down, even the simplest steps, creates a visual connection between what you are thinking and what you are doing. Also, if and when you make a mistake, the visual connection makes it easier for you to find out where your mistake is, and therefore you do not have to repeat every single step of your calculation (thus saving you time and preventing you from potentially making other mistakes). So, always write down whatever you’re thinking and everything that you’re doing. Easy enough? Let’s move on.

**Rule #2 – *Numbers alone are meaningless*** (and useless in most cases). Guess what is more important than numbers. Yes, you guessed it right. Units!! When solving any math problem, units are much more important than



Cont'd

numbers. Let me give you an example. If I ask someone how much do they weigh, and they answer “220”, is that the right answer or the wrong answer? Well it depends. If I am someone who grew up understanding and only relating to the “English” system of units, I may say that this person looks like he weighs 220 pounds, so their answer is therefore correct. However, if I grew up only understanding and appreciating the “metric” system of units, I may say that their answer is wrong, because I am only thinking in metric terms, and in metric terms, this person does not look like they weigh 220 kilograms. So, by stating the proper units of measure immediately after each number, any confusion to the “value” of the number is eliminated. In addition, whether you can physically relate to a unit or not becomes totally irrelevant (it might be helpful if you can understand or relate or appreciate a unit like kilogram or pound, however it is not necessary when solving math problems).

Note that in the type of math that we perform in this business, there are a few numerical values that do not have any units attached to them. One example of those “unitless” values is  $\pi$ , which is the ratio of a circle’s circumference to its diameter (mathematically equal to 3.14159265....). And since it is a ratio, it becomes unitless.

**Rule #3 – Always use the formulas given to you or available to you on various formula sheets.** Do not invent your own formulas! Surprised? Don’t be. In my over 28 years of practice in this business, I have seen it many times, and I still see it every day. If the formula says multiply this by that, you multiply this by that. If the formula says divide this by that, well, you know the rest.

These my friends are the basic rules of solving all math problems; and believe me, they do not get any tougher than that. But as simple as they may seem, there are individuals out there who still break these rules everyday of their practice (and then wonder what went wrong). Now of course there are other rules for performing more advanced calculations, but the basic rules stated above will suffice for now. If you practice these basic rules diligently and all the time, you will find out that math is not that difficult to deal with and it may even become the easiest part of your job. I will also let you in on a little secret of mine. If you master Rule #1 and Rule #2 above, you won’t even need formulas to solve most of your basic process math problems! That’s how easy it is.

Some of the math calculations that I intend to cover in upcoming issues will include conversions, basic areas and volumes, flows, retention times, pumping rates, dosages, horsepower, along with various wastewater process control calculations such as F/M (food to microorganism ratio), MCRT (mean cell residence time), and mass balance, to name a few. I also intend to cover various calculations related to digesters and their operation, and sludge management. My plan is to start off with the basic building blocks and then move forward to the more advanced process math in future issues.

But for this introductory math corner, I will leave you with a couple of straightforward conversion problems (for which answers will be published in the next issue). In the meantime, just sit back and think about starting to practice these basic rules when working with the problems below. And if you have any specific math-related questions or suggestions you would like to send my way, feel free to email me directly at [lexicon@ca.inter.net](mailto:lexicon@ca.inter.net).

See you in the next issue.

Hany G. Jadaa; C.Chem., M.Sc. Eng.  
Director/Senior Technical Advisor  
**LEXICON** Environmental Consulting Services Inc.





Cont'd

**Problem 1** – Convert 375 liters/sec to m<sup>3</sup>/day.

**Answer**

- a) 4.3 m<sup>3</sup>/day
- b) 540 m<sup>3</sup>/day
- c) 1,350 m<sup>3</sup>/day
- d) 32,400 m<sup>3</sup>/day

**Problem 2** – Convert 460 imperial gal/min to m<sup>3</sup>/day

**Answer**

- a) 3,011 m<sup>3</sup>/day
- b) 145.7 m<sup>3</sup>/day
- c) 125.5 m<sup>3</sup>/day
- d) 70.3 m<sup>3</sup>/day

Copyright © 2015 LEXICON Environmental Consulting Services Inc.  
Reprinted with permission from WEAO Influent; Issue Spring 2015

**About Hany G. Jadaa**



AWWAO would like to thank Hany for providing us with the quarterly Operator Math Corner article. Hany is an Environmental Engineer, a professional musician, a semi-professional photographer, and a long-time practitioner and trainer of traditional martial arts and self-defense. AWWAO has been fortunate to have had Hany as a trainer for different courses throughout the years.

Hany Jadaa, C.Chem., M.Sc.Eng., has over 32 years of experience in water and wastewater process engineering design, process operations & optimization, process audits, systems troubleshooting, and training. He was one of the first research scientists to work on the control and treatment of THMs and THMFP in drinking water supplies through chemistry control and optimization of the coagulation and flocculation process; solved numerous complex process problems at both water and wastewater plants by adopting innovative approaches to problem solving. Hany's skills include helping audiences during training sessions with their plant problems through dynamic problem-solving methods and training delivery techniques. He has written over 50 training manuals and instructional books for multiple institutions and continues to develop training material based on new challenges in the industry. He is currently the Director/Senior Technical Advisor at Lexicon Environmental Consulting Services Inc.



## Mamaweswen, The North Shore Tribal Council & Water First Announce New Training Internship for WTP Operators

**New Collaboration Supports Young Indigenous Adults to Become the Next Generation of Water Operators**



Serpent River First Nation, March 21, 2022 – This World Water Day, Mamaweswen, The North Shore Tribal Council (NSTC), with seven member First Nations in Northern Ontario and Canadian charity Water First Education & Training Inc. announce their partnership to deliver the



NSTC Water First Internship, a drinking water treatment and environmental water science training program for young Indigenous adults. Approximately 14 interns will be recruited from seven participating First Nations communities across the tribal council's region to pursue Operator in Training (OIT), Entry Level Course (ELC), and Water Quality Analyst (WQA) certifications, which help trainees begin their careers in the water field.

The collaboration will address the local community-identified need for the recruitment and training of more young adults to the field of water science. The comprehensive internship and certification program helps increase local, technical capacity in the water management field, not only for today, but for future generations as well.

Angus Toulouse, Mamaweswen CEO, said, "We started discussing this potential project with Water First in the fall of 2021. Today, we are excited to announce a partnership that will help recruit and train young Indigenous adults in the field of drinking water treatment. Current operators in our member communities do a terrific job with the resources available to them, and it's recognized that more young, local operators are needed to help continue providing safe drinking water to our residents. With their focus on running local water plants, our operators are simply too busy to also design and deliver a comprehensive recruitment, training and tutoring program like the one Water First offers. Through this important partnership, we look forward to supporting the next generation of local water operators who will help protect the health and wellbeing of their communities and families."



Left: Drinking Water interns from Georgian Bay collecting benthics in order to understand water quality. Although the interns are being trained to become water treatment plant operators, environmental water knowledge brings greater insight into source water impacts on drinking water.

The NSTC Water First Internship is partly funded through North Shore Tribal Council and member First Nation program resources, together with the support of Water First's donors. During the Internship program, commencing summer of 2022, each intern can accumulate approximately 1,800 hours of on-the-job experience in water treatment plants, which is a part of the certification process. Through the 15-month program, interns pursue provincial certifications, which can lead to work in both drinking water treatment and the environmental water field.

"The Internship program is designed to support young Indigenous adults to obtain the provincial water treatment certifications and experience required to become water treatment plant operators. Through a mix of locally based trainings and hands-on experience in water plants, the interns learn and apply the skills needed to perform an important role for communities in addressing local water challenges, both now and in the future. We look forward to partnering with Mamaweswen to implement this critical program," said John Millar, executive director at Water First.



Cont'd

Right: Water First interns practicing testing water samples with a variety of instruments during the Entry Level Course (ELC) week at Seven Generations, Kenora, 2021.



To date, Water First has successfully implemented three internship partnerships including: one in partnership with eight First Nations in the Georgian Bay area that will see interns graduate in the fall of 2022, and two completed internships with the Bimose Tribal Council and eleven affiliated First Nations, and the pilot on Manitoulin Island in partnership with seven First Nations through the United Chiefs and Councils of Mnidoo Mnising, Wiikwemkoong Unceded Territory, and the Anishnawbek Nation.

Nathan Pamajewon, a Water First intern from Shawanaga First Nation, shares, “I believe this to be a career for myself. I’ve enjoyed all the experiences so far; that I have been given the chance to obtain greater things in life. I want to see our community grow and become the best it can be; provide the best and safe drinking water for my community, or another community that’s not mine.”

Many First Nations with drinking water challenges have identified the need for more young, qualified and local personnel to support solving water issues independently and for the longer term. Indigenous communities do not receive adequate, locally based education, training and employment support when it comes to attracting and retaining young people in the water science fields. These supports are critical to ensuring the long-term sustainability of Indigenous drinking water systems.

**About Mamaweswen, The North Shore Tribal Council**

NSTC’s mandate is to assist and facilitate the activities of the member communities of the North Shore Tribal Council. In a manner that promotes the cultural, spiritual, political, economic, environmental and social well being of the member First Nations, the Tribal Council acts to serve three primary functions:

- Research, develop and deliver regionally based products and services to member communities when directed by NSTC member communities
- Provide advisory services to member communities
- Provide collective political support to advance the betterment of First Nations people <http://mamaweswen.com/>

**About Water First Education & Training Inc. (Water First)**

Water First is a registered Canadian charity that addresses water challenges in Indigenous communities through education, training and meaningful collaboration. Water First has partnered with over 55 Indigenous communities across Canada. [www.waterfirst.ngo](http://www.waterfirst.ngo)

For more information, please contact::

**Ami Gopal**  
Director of Development and Communications  
Water First  
1-905-805-0854  
[ami.gopal@waterfirst.ngo](mailto:ami.gopal@waterfirst.ngo)

or

**Ken MacLeod**  
Infrastructure Specialist  
Mamaweswen, The North Shore Tribal Council  
1-705-227-1259  
[kmacleod@mamaweswen.ca](mailto:kmacleod@mamaweswen.ca)

