A Newsletter for Water and Wastewater Treatment Plant Operators!

THE WATERDRUM

January 2023

Inside this issue:

Wishing a very blessed and beautiful New Year to all our members and their families. May you all have a cheerful, wonderful and memorable year ahead. Together, let us conquer each and every challenge that comes in our way. Together, let us have a fantastic year ahead.

AWWAO would like to cordially invite you to attend the 28th AGM, Training & Tradeshow Conference being held at the Casino Rama, Orillia, ON the week of May 1-4th, 2023.

Our event features CEUs courses, keynote speakers, the 7th Annual Tradeshow, awards for Operator of the Year, Instructor of the Year, the Water Cup Challenge and an opportunity for professional development and networking opportunities.

Watch your emails for upcoming conference registration forms!

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.

Thunder Bay Exam Prep Recap

In our continued quest to improve the First Nations Operator's level of certification, AWWAO hosted a Northern exam preparation course in Thunder Bay. The course contained a four-day classroom prep, followed by a fifth day Provincial Certification Exam. There was a total of 31 operators in attendance. Keewaytinook Centre of Excellence (KCE) provided the training for these courses.

AWWAO would like to thank KCE instructors, Charles Friday and James Haskell for their providing an excellent and informative exam prep course.

This First Nation was on water advisories for 24 years. Now, its treatment plant has won an award

$33M facility in Shoal Lake #40 First Nation honoured for top small drinking water facility in Ontario

Jon Thompson · CBC News · Posted: May 18, 2022 4:00 AM ET | Last Updated: May 18

An aerial view of the award-winning new water treatment facility in Shoal Lake 40 First Nation in Northwestern Ontario. (Tyson Koschik/CBC)

A northwestern Ontario First Nation that was under a boil-water advisory for 24 years has received this year's award for building the province's best small drinking water system.

The Ontario Public Works Association presented the 2022 Public Works Project of the Year for Small Municipalities and First Nations award to Shoal Lake #40 First Nation, at a ceremony in Mississauga, Ont., Tuesday.

The award recognizes the new Shoal Lake #40 water treatment plant as having uniquely provided opportunities for local procurement and employment.

"It succeeded because the community was in control of every facet, every step of the way," said Cuyler Cotton, the project's technical adviser.

The $33-million plant opened in September and provides water to over 100 buildings in the First Nation, located near the Manitoba border. Its network leaves room for new homes to be built, as members are returning to live in the community.

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It had been under drinking water advisories since 1997, until the facility opened last September.

'Our whole goal was clean drinking water'

"We didn't have any intention of winning an award like this," said Shoal Lake #40 Coun. Bill Wahpay. "Our whole goal was clean drinking water, but the water treatment project was a unique project, right from the start."

The project was designed as an Indigenous Services Canada pilot to see whether an Indigenous-specific tender process could better serve Indigenous communities. Right now, all projects worth more than $500,000 need to go to a national bidding competition, according to a department spokesperson.

The plant was built on time and on budget over 18 months, under an Indigenous Services Canada pilot project. Its procurement process required companies to be majority First Nations owned. Of the three qualified applicants, the successful bid was a partnership between Shoal Lake #40's Kekekoziibih company and Sigfusson Northern Ltd.

The tendering process also required the project to employ at least 30 per cent First Nations labour. It far exceeded that, with 53 per cent.

- **After 24 years of water advisories, Shoal Lake 40 First Nation can drink from the tap**
- **Tapped out: Shawinigan residents want answers about water filtration plant**

"Local labour, local equipment, local employment brought back to the community… We built this facility from the ground up, right from the site preparation to the nuts and bolts of the building," Wahpay said.

"It's an amazing, amazing project. That's how the majority of projects should be run on all of the First Nations, not just First Nations, but all the rural municipalities around the area, around Canada. That's how it should be done." Andrew Burdett is the superintendent with Sigfusson Northern.

Burdett supervised the water plant's construction, and was involved with Shoal Lake #40 for over two years in the new school and Freedom Road, the historic project completed in 2019 that connected the peninsula to the Trans-Canada Highway and ended a century of isolation.

Burdett said Kekekoziibih's involvement was crucial because its leaders were so familiar with local residents that they were able to tailor personal paths to successfully recruiting and retaining workers.

Some community members who had experience on previous projects were able to start their own contracting companies and purchase equipment, which he sees as contributing to a sustainable, local industry.

"It really promoted independence for business owners," said Burdett. "It's definitely a change from the normal where we go into communities and leave with all of our equipment. They were left with something and a little bit of a construction business to go on."

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Anthony Green, the Shoal Lake #40 water treatment plant operator, tests for chlorine. The facility has been named Ontario's best small drinking water system. (Tyson Koschik/CBC)

Thunder Bay, Ont.-based Colliers Project Leaders is evaluating the pilot project's process for the federal government.

Colliers senior project manager Sean Petrus said he observed workers being excited on the job site and motivated to work hard out of community pride.

Although the report is still being drafted, Petrus will recommend that this model be applied to projects in Indigenous communities across Canada, including exploring value-for-dollar equations that could keep expenditures low without having to tender projects publicly, beyond local companies.

After 14 years, boil water advisory lifted for most in Tyendinaga Mohawk Territory

"I'd like to see First Nations being granted more opportunity where they don't have to fight as much to get the work that's going on right next door to them," said Petrus. "The opportunities for self- determination should be provided to more communities so they can realize successes like the successes that have been realized by Shoal Lake #40 in this process."

The evaluation report from the Shoal Lake #40 pilot is expected to be complete sometime this spring, according to Indigenous Services Canada.

Sachigo Lake First Nation ends boil water advisory after treatment plant upgrades

Jennifer Francis · CBC News · Posted: Dec 03, 2022 4:00 AM ET | Last Updated: December 3

Improvements to the infrastructure at Sachigo Lake First Nation include upgrades to the water treatment plant and extending the water distribution system. (David Donnelly/CBC)

Upgrades and expansions to water infrastructure at Sachigo Lake First Nation are now complete, lifting a four-year boil water advisory in the community.

Sachigo Lake, about 640 kilometres north of Thunder Bay, Ont., has over 500 people living on reserve.

Improvements to the infrastructure, which cost $29 million over five years, include upgrades to the current water treatment plant, extending the water distribution system and expanding the wastewater lagoon.

Tom Sayers, overall responsible operator for the Windigo First Nations Council, provides technical assistance in the operation of water treatment facilities in the Windigo First Nations communities. The council looks over seven First Nations in northern Ontario, including Sachigo Lake.

"It means a lot to the community because it increases the capacity of safe drinking water for the community and it fixes many of the deficiencies of the old water treatment plant that was designed many years ago," he said.

The community has been relying on bottled water for drinking water since the advisory started, and a standalone reverse osmosis unit at the local store.

He said the removal of the boil water advisory means the water is deemed safe to drink from a microbiological and chemical perspective.

"We rely on weekly testing to determine the safety of the water so if we see any anomalies in either process or operations of the plant, then the plant would be placed on a boil water advisory again," he said.

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"But for now, with the new system, the water has been deemed safe and everybody can drink the water."

He said they have been working with the federal government since the boil water advisory was implemented to find a solution to Sachigo's issues with its previous treatment system.

"The treatment system was basically at an age where the equipment was breaking down significantly in the filter system, which led to more of an urgency to address the boil water advisory," he said.

Infrastructure investments should be maintained, says chief

In a news release, Indigenous Services Canada said the improvements provide safe drinking water for 185 homes and non-residential buildings like the band office, schools, the community hall, daycare and the hockey arena.

"As people of the land, we understand firsthand how clean water is the starting point to all life," Sachigo Lake Chief Robert Beardy was quoted in the release.

"As chief, I am pleased that finally today, I can tell community members that the water is good, the water is drinkable and that the clean water flowing from our taps takes us one step closer towards fairness and equity, safety and well-being.

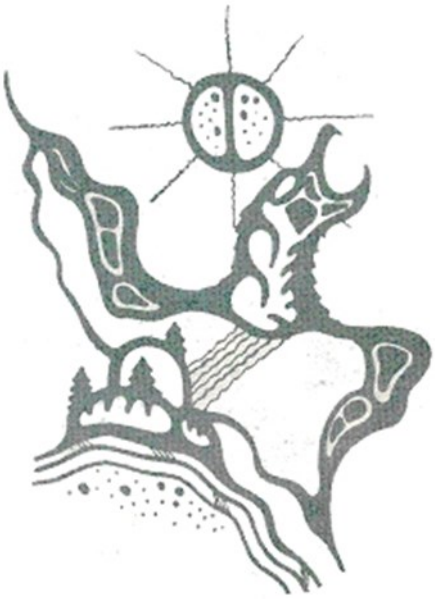
"Looking ahead, however, we must ensure that ISC maintains critical capital investments into Sachigo Lake's infrastructure so that our children and those yet to come can expect clean drinking water from their taps, too."

In the release, Indigenous Services Minister Patty Hajdu thanked Beardy and the teams that led to the lifting the boil water advisory.

"The people responsible for upgrades to the community water infrastructure worked through the COVID-19 pandemic and supply chain delays," she said in the release.

"Despite all of these barriers, they finished the job. Congratulations, Sachigo Lake First Nation on this new chapter."

According to the release, 136 boil water advisories have ended across Canada since November 2015, 69 of them in Ontario. It said work is underway in 19 Ontario communities to resolve the remaining 22 long-term drinking water advisories.



Water Cup Challenge Winner 2022

Ian Fortin, AWWAO Chairperson presented the trophy to Greg Edwards from Apitipi Anicinapek Nation. Congratulations!

Greg Edwards

On-the-Job (OTJ) Practical Training

Often applications provide only partial information or training activities or topics which may not meet the criteria for OTJ training and require us to follow up with the operator resulting in delays to the application process.

To improve the processing of certificate renewal applications and to avoid delays, we ask operators to:

1. Submit OTJ Training in a list format (i.e., from a training management system or on the form provided in the application) that is easily readable and does not include unrelated or irrelevant information (**e.g. wastewater courses, duplicate information, training outside of the renewal period).**

2. Provide the following minimum information when reporting OTJ training:

- **Descriptive training event name (or combination of name and description)**
- **Date of event (start and end if more than 7 hours are being claimed)**
- **Training event duration (i.e., # of hours)**
- **Training provider name**
- **Authorized signature**

Submit only acceptable activities and topics as outlined in the following :

Ministry Guideline - Training Requirements for Drinking Water Operators,

Part A: information on certification and training requirements

Drinking water operator certificates and water quality analyst[footnote 1[1]] certificates are valid for three years. During the three-year period, an operator is required to complete the required training. The purpose of the training is to ensure that certified operators maintain and enhance their knowledge pertaining to the operation of drinking water systems and remain knowledgeable on current trends in the industry.

Your certificate [footnote 2[2]] is due to expire. What are you required to do?

- A renewal notice will be sent to you three months prior to your certificate expiry. Read your renewal notice to determine if you are required to submit training documentation.
- Check your expiry date. Your renewal application should be submitted at least one month prior to the expiry date.
- Verify three months of direct or related experience (to be signed by your supervisor).
- If requested on your renewal notice, provide a summary of your training completed during the previous three years.
- Submit your renewal fee.

Certificate period

Your training must be completed during the three-year duration of a certificate ("certificate period") from the date your certificate was issued to the expiry date printed on the certificate. Training may be completed at any time during the three-year certificate period. For example, you may obtain training throughout the term of the certificate or in only one year of the period.

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If you complete more training than is required in a certificate period, the excess training may not be used for the next renewal cycle. Likewise, training completed after you submit your application for renewal but before the expiry of your certificate may not be used for the next renewal cycle.

What training am I required to complete?

The number of hours which must be completed during a certificate period is based on the highest class of drinking water system which you operate. If you do not operate a drinking water system, the required hours of training are based on the highest class of certificate you hold. See Table A for a summary of the hours of training that are required.

Table A: Total Number of Required Training Hours to Renew a Certificate (Total-Hours During the Three-Year Certificate Period)

Highest Class of System You Operate[footnote 3[3]]	Continuing Education	On-the-Job Practical Training	Total Hours (During the Three-Year Period)
Class I	21	69	90
Class II	36	69	105
Class III	42	78	120
Class IV	42	108	150
Limited Groundwater or Surface Water	21	39	60
Water Quality Analyst	21	39	60

Cont'd

To renew a certificate, you are required to complete three types of training:

1. The Mandatory Renewal Course;
2. Continuing Education; and
3. On-the-job Practical Training.

1. Mandatory Renewal Course

The Mandatory Renewal Course must be completed during the term of the certificate. This course is offered through the Walkerton Clean Water Centre and covers topics on the latest trends and issues in the drinking water industry. The course is revised once every three years.

The Mandatory Renewal Course is seven (7) hours in duration. These hours may be used to meet your Continuing Education requirement.

2. Continuing Education

Continuing Education consists of formal training which has been approved by the authorized ministry Director under *O. Reg. 128/04*. A list of approved training may be found on the operator certification Program Administrator's website. Only courses on the approved list can be used to meet the Continuing Education requirements[footnote 4[4]]

Rules for Continuing Education

- The seven hours obtained by completing the mandatory renewal course may be used to meet the Continuing Education requirement.
- Only training completed during the term of the certificate may be used. Any training completed prior to obtaining a certificate cannot be used.
- Conferences sponsored by the Ontario Water Works Association, Ontario Municipal Water Association, Aboriginal Water Wastewater Association of Ontario and the American Water Works Association which are on the approved list may be used to meet up to 25 per cent of the Continuing Education requirement (See Table B). Any hours in excess of the 25 per cent may be applied to the On-the-job Practical Training requirement. For example, if you attended 15 hours of conferences and work in a Class III system, you may apply 10 hours to Continuing Education and 5 hours to On-the-job Practical Training
- Course hours are rounded down to the nearest full hour. For example, if training is 4.5 hours in duration, the course would be credited with 4 hours of Continuing Education.
- Courses are credited a maximum of seven hours per day.
- In order to claim hours for a Continuing Education course you must have successfully passed the course.
- The same course may only be used once in any three-year certificate period.

Some courses may indicate the length of the course as a Continuing Education Unit (CEU). Generally, one CEU equals 10 hours of classroom instruction or 10 hours of Continuing Education.

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Table B: Maximum Number of Conference Hours Allowed for Continuing Education Requirement (Three Year Certificate Period)		
Class of System You Operate	**Total Hours of Continuing Education Required (During Three Year Period)**	**Total Hours of Approved Conferences Allowed (During Three Year Period)** footnote 5[5]
Class I	21	5
Class II	36	9
Class III	42	10
Class IV	42	10
Limited Groundwater or Surface Water	21	5
Water Quality Analyst	21	5

3. On-the-job Practical Training

On-the-job Practical Training is not pre-approved by the Director. Generally, this type of training would include:

- formal training which has not been approved as Continuing Education; or structured learning received in the workplace.

In order for a learning event to be considered On-the-job Practical Training, it must meet the following criteria:

- Be a structured learning event involving contact between the learner and instructor. Contact implies two-way communication, such as the instructor:
  - providing feedback to the participant in the form of answers to questions
  - providing comments on participant's demonstration of learning
  - monitoring the learner's progress
- Have documented learning objectives that state what learners will know and/or be able to do as a result of taking the training
- Be delivered by a trainer with expertise in the subject matter. A trainer is considered to have expertise in the subject matter if he or she has obtained:
  - formal education on the subject matter,
  - specific training on the subject matter, or
  - at least three years direct experience on the subject matter.

Be on a subject directly related to the duties typically performed by an operator. See page 11 and 12 for a list of approved topics, see page 13 for a list of topics that are not acceptable for On-the-job Practical Training.

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Table C: Types of Activities Accepted as On-the-Job Practical Training Class I to IV Operator and Water Quality Analyst Certificates	
Accepted	**Not-Accepted**
♦ Instruction/discussions on health and safety ♦ Facilitated review of emergency procedures within the place of work, risk assessment, contingency planning ♦ Demonstrations and/or instruction on operational duties including health and safety provided by suppliers, supervisors or other operators ♦ Facilitated review of operating procedures or the DWQMS operational plan ♦ Training on workplace procedures or equipment ♦ On-line or computer-based training ♦ Viewing of videos with a facilitator ♦ Attending Ontario Water Works Association/ Ontario Municipal Water Association technical committees on subjects dealing with research, operational processes or regulatory issues (maximum 12 hours per certificate cycle) ♦ Providing instruction or presentations to other operators on approved subjects (preparation time is not allowed)	♦ Business meetings ♦ Time spent performing the duties of a drinking water operator or water quality analyst outside of a structured learning event ♦ Time spent conducting or participating in an inspection ♦ Non-facilitated viewing of videos, ♦ Reading of operating manuals, operating procedures or trade magazines ♦ Professional writing (e.g., reports, operating procedures, journal or magazine articles, etc.) ♦ Participation in general committees ♦ Mentoring/Job-shadowing (although training on workplace procedures or equipment during a job-shadow may be counted if properly documented)

Table C: Types of Activities Accepted as On-the-Job Practical Training (continued) Limited Groundwater and Surface Water Certificates	
Accepted	**Not-Accepted**
Same as above plus: ♦ Review of inspection results with a water inspector ♦ Viewing of related videos ♦ Reading of system specific operational manuals/instructions/ emergency procedures (maximum 9 hours per certificate cycle).	Same as above except where noted in the "Accepted" column.

Rules for On-the-job Practical Training

- If an exam or test is included, the participant must pass the exam or test to be able to count the hours.
- Excess Continuing Education hours may be used to meet the On-the-job Practical Training requirements, without limit.
- A maximum of seven hours of training may be counted per day. Some exceptions may apply - contact the Program Administrator for details.
- Hours are rounded down to the nearest quarter hour.
- The same course may only be used once in any three-year certificate period.

Cont'd

- The number of hours claimed must be consistent with the training record or documentation provided for the course unless the portions of the course are not being claimed or are not applicable. For example, if a training record states a training course is six hours you may not claim seven hours.

- For a training course to be eligible for On-the-job Practical Training, you must provide the following information with your renewal application
- Date of training session;
- Topic(s) of Training / Course name if applicable;
- Name of training provider (name of the organization or instructor);
- Course duration (in hours or Continuing Education Units);
- Telephone number of training provider (if the instructor is not an employee of the operating authority).

- The summary must be signed by either a(n):

- Overall Responsible Operator (ORO);
- Authorized designate of ORO;
- Manager or Supervisor of ORO; or
- Training coordinator if authorized by the ORO to do so.

- In addition, the employer is required to maintain additional information for at least 5 years (see Table D on page 14).
- **Topics accepted for On-the-job Practical Training:**

- **Treatment and distribution**
- Operation of drinking water systems
- Drinking water treatment processes, equipment
- Distribution system maintenance (flushing, cleaning, tapping, repair)
- Leak detection
- Water storage
- Pump operation/pumping station operation

- **Regulatory/health and safety**

- Act, regulations, policies, standards and guidelines governing Ontario's drinking water systems
- MOECC standards, policies and procedures related to drinking water
- Health and safety directly related to the duties of an operator
- AWWA, Ontario or site-specific standards or operating procedures

- **Water quality**
- Chemistry, physics and other applied sciences related to the operation of a drinking water system
- Water quality
- Microbiology/drinking water pathogens
- Sampling and laboratory techniques
- Monitoring

Cont'd

Basic concepts

- Source water protection
- Disinfection (theory, practice, equipment, chemicals)
- Applied engineering related to drinking water treatment or distribution
- Applied mathematics
- Hydraulics
- Well operation and hydrogeology

- **Operational support**

- Drinking water equipment maintenance/preventative maintenance
- SCADA and process control
- Computer programs directly related to drinking water systems
- Cross connection control
- Backflow prevention
- Residuals management

- **Management of systems**

- Training on system's DWQMS (but not work to develop the DWQMS)
- Professional effectiveness training including conflict management, problem solving, effective communication, and risk management decision making which can be directly related to the duties of a drinking water operator
- Management of drinking water system
- Management/supervision of water system staff
- Emergency management
- System security
- Customer relations/communications
- Professional responsibility of an operator

- Other topics approved by the Director

- **Topics not accepted for On-the-job Practical Training**

- Operation of wastewater facilities and storm water systems,
- Generic computer training (word processing etc.),
- Health and safety not directly related to the duties of an operator
- General human resources or corporate policy,
- Other topics not directly related to the duties typically performed of a drinking water operator or water quality analyst.

- **Credit for trainers, instructors and presenters**

- You may receive hours of training for teaching or instructing Continuing Education or On-the-job Practical Training.

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The following types of activities may be eligible for training hours:

- Presenting in a classroom, conference, workshop or seminar
- Presenting in a webinar
- Developing on-line course material

If you teach the same course more than once during a certificate period, you may only claim the hours for that course once. The number of hours you will be credited is equal to the number of hours of instruction participants receive. For example, if a course is 35 hours in duration and an operator delivers a 15-hour section of the course, only 15 hours may be claimed. Preparation time prior to instructing cannot be claimed.

Development of on-line learning modules will be credited at the same number of hours it takes for a participant to complete the on-line module. Writing articles for trade magazines or journals cannot be accepted towards meeting your training requirements.

Renewal process

A renewal notice will be sent to operators three months prior to expiry. It is your responsibility to ensure that your address on file is current. If you have not received a renewal notice, please contact the Program Administrator.

When submitting an application for renewal, ensure that you have the required number of hours of training. Applications without sufficient training will not be processed.

What to submit

Continuing Education: Submit a course certificate or a signed letter from the training provider verifying successful completion of the course. The certificate/letter must include the course name, duration (in hours or Continuing Education Units), date of course and name of the training provider.

Some municipalities have an agreement with the ministry which allows applicants to submit a summary of their training in place of copies of course certificates. Your supervisor or training coordinator will have further details if this applies to your municipality.

On-the-job Practical Training: Submit a summary sheet signed by your supervisor or training coordinator. The summary sheet must include the date of the training, subjects covered, training provider/instructor's name and the number of training hours.

Multiple Certificate Holders: If you hold more than one drinking water certificate, your training may not be checked each time you renew. For example, if you hold a Class I water treatment certificate and a Class II water distribution certificate, training will only be checked upon expiry of one of the certificates.

Your renewal notice will state if training records are required with your submission. You may also contact the Program Administrator to determine the next time your training will be verified.

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What to keep on file

Records of On-the-job Practical Training must be kept on file for five years from the date of training. It is recommended that Continuing Education course certificates be kept until you no longer hold an operator certificate.

Table D: What Information to Submit and Keep on File

Type of Training	What to Submit	What to Keep on File
♦ Mandatory Renewal Course	♦ Copy of course certificate issued by the Walkerton Clean Water Centre	♦ Course certificate issued by the Walkerton Clean Water Centre
♦ Continuing Education	♦ Summary of completed training ♦ Copy of course certificate issued by training provider ♦ If you taught or instructed a course: ♦ Agenda or course outline which includes your name, subject you taught, date of training and duration; or ♦ Letter from the training provider verifying that you taught the course	♦ Course certificate issued by training provider ♦ Agenda or course outline ♦ Letter from training provider verifying that you taught the course
♦ On-the-Job Practical Training	♦ Summary of completed training including: ♦ Date of training ♦ Course name (if applicable) ♦ Instructor name ♦ Duration in hours ♦ Subjects covered	♦ Same as listed to the left plus: Method of training used Information confirming trainer has expertise in the subject Learning objectives

What to do if you have not met your training requirements

If you have not completed the required training and have a valid reason (as outlined below), you may submit a letter to the Director (c/o of the Program Administrator) requesting a renewal of your certificate under Section 7(6) of *Ontario Regulation 128/04*. The Director may issue a certificate for up to six months, to give you more time to complete the required training, if they are satisfied you will do so within that period.

You must submit a letter identifying the reasons why you were unable to obtain the required training. Your supervisor is required to co-sign the letter.

The reasons the Director may accept include:

- extended illness (must be documented by a physician)
- severe operational issues which resulted in planned training being cancelled or postponed
- scheduled training was cancelled by the training provider

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- submitted on-the-job practical training was not accepted
- operator was on an extended leave of absence during the last year of the certificate
- other reasons as approved by the Director

Poor record keeping or failure to plan the required training are not considered valid reasons for failing to complete the training. Operators who are unable to renew their certificate will not be legally allowed to continue to operate a drinking water system upon expiry of their certificate.

To request issuance of a 7(6) temporary certificate, submit the following:

- A renewal application form;
- All applicable training records;
- A letter signed by yourself and your supervisor requesting that a 7(6) certificate be issued; and
- Include in your letter the reason(s) for failing to complete the required training.
-

Expired certificates

If your drinking water certificate is expired for less than one year, you may renew it by paying the applicable late fee and submitting the required training and experience verification. If your certificate has been expired for more than one year, you will need to meet the qualifications for the certificate which will include rewriting the exam if you wrote it more than 5 years ago. Depending on your individual circumstances you may be required to restart your certificate at a Class I level.

Special circumstances

If you have been on long-term disability leave and are returning to work, please contact the Program Administrator. The ministry will take into consideration your situation and issue a conditional certificate if appropriate.

Part B: information for training providers

All Continuing Education courses must be pre-approved by the Director. Guideline 4.4 includes the criteria that must be met for Director approval of Continuing Education and explains how to submit an application for course approval.

Training providers shall not state or imply that the ministry endorses or approves the content of a course which has been approved.

Training providers may only advertise that a course has been approved after they have received confirmation from the Director.

Uploading participant completion into the ministry's Water/Wastewater Operator Certification System (WWOCS) is a requirement of continual approval. Course providers who do not upload results in a timely manner may have their approved courses removed from the course listing.

Course providers must maintain a policy regarding successful course completion which includes criteria for testing a participant's mastery of the material and attendance requirements.

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There is no pre-approval process for On-the-job Practical Training.

- water system or water quality analyst certificate unless otherwise specified.
- footnote[2] Back to paragraph^ Renewal of Operator-in-Training certificates is not covered in this document. For more information contact the Program Administrator.
- footnote[3] Back to paragraph^ If you are not employed in a drinking water system when applying to renew your certificate your training hours are based on the highest level of certificate you hold.
- footnote[4] Back to paragraph^ Drinking water related courses completed as part of a degree or diploma program from an Ontario university or community college may be accepted as Continuing Education..

Types of Activities and Topics Not Accepted as On-the-Job Practical Training
Below are examples of commonly submitting training topics/courses that are not accepted.

Activities Not Accepted as OTJ Training (per Ministry Guidelines)	Examples of Topics or Courses Not Accepted	
♦ Business meetings ♦ Non-facilitated viewing of videos ♦ Time spent performing the duties of a drinking water operator or water quality analyst outside of a structured learning event ♦ Time spent conducting or participating in an inspection ♦ Reading of operating manuals, operating procedures or trade magazines ♦ Professional writing (e.g. reports, operating procedures, journal or magazine articles, etc.) ♦ Participation in general committees ♦ Mentoring/Job-shadowing (although training on workplace procedures or equipment during a job-shadow may be counted if properly documented)	♦ Operation of wastewater facilities and storm water systems ♦ Workplace Violence, Discrimination, Anti-racism ♦ Sexual harassment/bullying ♦ Fraud Awareness ♦ General Computer literacy Courses such as: -MS Word, MS Excel, etc. ♦ Construction Law ♦ HR or admin courses such as: -Workplace specific, e.g. Municipal Employee Code conduct specific training on the drinking water operator code of ethics is accepted) -Workforce planning -Attendance/lateness policy -Procurement -Labour relations -Human rights -Conflict of interest	♦ Wellness courses such as: -Sleep Well -Work Life Balance -Creating Balance in Your Life -Importance of Staying Active ♦ Civility and respect ♦ Generic technical writing not specific to drinking water operations ♦ Effective Communication at Work ♦ Emotional Intelligence ♦ Negotiation ♦ Retirement Planning ♦ Dress code ♦ AODA

We encourage you to share this email with supervisors and operators to help them with selecting and submitting OTJ training for water certificate renewals.

Operator Math Corner
Article #4 -Getting Comfortable with Unfamiliar Territories

Operators Math Corner
By *Hany G. Jadaa*; C. Chem., M.Sc. Eng.
LEXICON Environmental Consulting Services Inc.

A big hello once again to all my friends and colleagues in the business. In my last article, I walked you through a fairly simple technique that would allow you to convert between various units with relative ease and speed (and without having to put so much sweat and tears into the process); a technique that will guarantee you the right answer all the time, not some of the time. So, if you are reading this article, it tells me that you are ready to dive into (perhaps) some unfamiliar territories and get more comfortable with the process of unit conversion. My intent in this article is to focus your attention by summarizing the important issues around converting units, and then walk you through the two example problems given in previous article. Here is a quick recap.

First, remember two important rules for solving math problems:
- Don't do it in your head; instead, write everything down.
- Forget about numbers; instead, focus your attention on units.

Second, you can get all kinds of unit conversion tables from a multitude of sources, but here is a condensed list of the ones you need the most in our business (important ones you must know plus many useful ones that you might occasionally need).
- 1 m = 100 cm = 1,000 millimeters
- 1 m^3 = 1,000 Liters
- I Liter = 1,000 milliliters
- 1 Kg = 1,000 grams = 1,000,000 milligrams
- 1 Kg = 2.2 lbs
- 1 m = 3.28 ft
- 1 ft = 12 inches
- 1 U.S. gallon = 3.785 liters
- 1 Imperial gallon = 4.546 liters
- 1 M^3 = 35.3 ft^3
- 1 ft^3 = 7.48 US gallons
- 1 ft^3 = 6.23 Imperial gallons

I am going to add the following time conversions to the list (I'm positive you know these, but just to be on the safe side), along with a little short cut for those of us who really want to speed things up a little bit more.
- 1 day = 24 hours
- 1 hour = 60 minutes
- 1 minute = 60 seconds
- 1 day = 1,440 minutes = 86,400 seconds (short cuts)

Third, remember the "*Hany Method*" and the various steps I showed you in my last article on how to use the boxes. In summary:
- Identify your given and your target units from the question, then start off by writing your given unit and its numerical value in the top compartment of the first H box.
- Cancel your given unit by placing it in the bottom compartment of the next H box, and place your target unit in the opposite location of this box.

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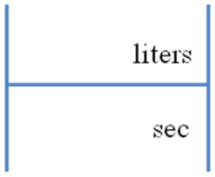
- Add the corresponding numerical values to your units in the second box and cross-out (cancel) similar units.
- Multiply or divide the numbers according to their location in the various boxes. Remember, top numbers get multiplied and bottom numbers get divided.

With all of that in mind, let's work on the first conversion problem following all the steps in detail. And bear with me as I go through a long-winded explanation of the process, but trust me, once you understand how it works, it takes mere seconds to complete and get the right answer (guaranteed).

Problem 1 – Convert 375 liters/sec to m^3/day.

Step 1 – Draw the first H box (Box #1).

Step 2 – Identify your "*given*" unit and your "*target*" unit. In this example, your "*given*" unit is "*liters/sec*" (which is a unit of flow). If you notice, this is actually comprised of two different units – "*liters*" and "*seconds*". Since we say "*liters per second*", the two units must remain attached to each other as one (i.e., must remain in the same grouping). The way we do this mathematically is think of this combined unit as a mathematical ratio between two units (one on top of the other). Accordingly, using the H method, make sure you place these units in <u>different</u> compartments but in the <u>same</u> box – one goes on top of the line (*liters*), the other goes below the line (*seconds*). As a mathematical ratio, now the term *liters/sec* gets written as



Let's examine this closely. All we have done here is take the word "*per*" (represented by the symbol / in the expression liters/sec), and transformed it into a divide line in the H box. We have then placed the first unit (*liters*) <u>above</u> this divide line, and placed the second unit (*seconds*) <u>below</u> the divide line (or on the bottom) in the <u>same</u> box. This approach becomes very critical when it comes to unit cancellation.

Using the same approach, our "*target*" unit is "m^3*/day*" (or m^3 *per* day). Again, this is a combined unit representing flow, and is made up of m^3 and *day*. So let's take both units and place them in the same box, one unit on the top (m^3) and another on the bottom (*day*).

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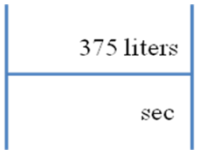
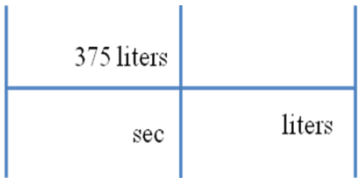
Now notice the following. Since in this example we have two different types of units to work with (one is a unit of volume and the other is a unit of time), we therefore need to perform two conversions, not one. The first is *liters* è m^3, and the second is *seconds* è *days*. With that in mind, we need to construct two H boxes. But first.

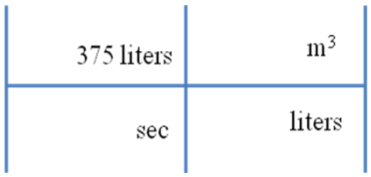
Step 3 – Take the given numerical value given in the example (375) and attach it to its corresponding unit (*liters*). It goes in the top portion of the first box. Now you are done with the "given" units and their corresponding numerical values.



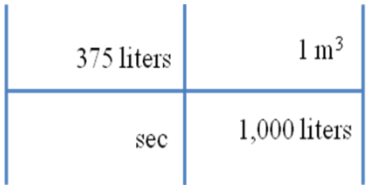
Step 4 – Remember, when dividing a unit by itself, it gets cancelled out. To cancel the unit "*liters*" from the first box, let's place it in a second box, Box #2, on the bottom (i.e.; below the divide line).



Step 5 – Remember your first *target* unit? That target unit in this example is "m^3", and that gets placed in the empty compartment of the same box (Box #2, above the divide line).



Step 6 – Insert the proper conversion factors for these units. Recall that 1 m^3 is equal to 1,000 liters. Therefore, the number 1 goes in the compartment on the top before the unit m^3, and the number 1,000 goes in the compartment on the bottom before the word liters.



Step 7 – Since the unit "*liters*" appears in two opposite locations (the top of one box and the bottom of another), they can now be cancelled. The only unit left over in Box #2 is your target unit, in this case "m^3".

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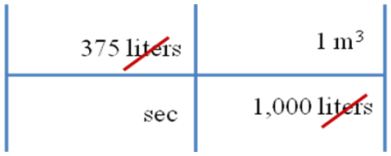
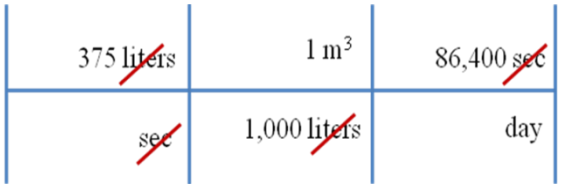
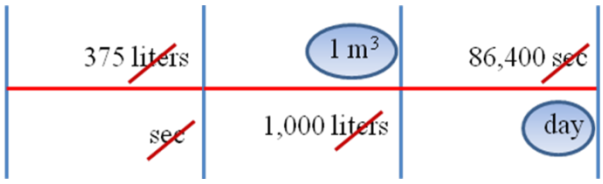


Now let's repeat Steps 5, 6 and 7 to the second unit that we need to convert, that is seconds è days. Since the unit "*seconds*" given to us in the example question appears in Box #1 below the divide line, we place it in another box, Box #3, in the top compartment (above the divide line) in order to cancel it out. The desired target unit, which is "*day*" is now placed in the opposite location (below the divide line). Using the time conversion short cut shown earlier, Box #3 is now added on to the previous box.

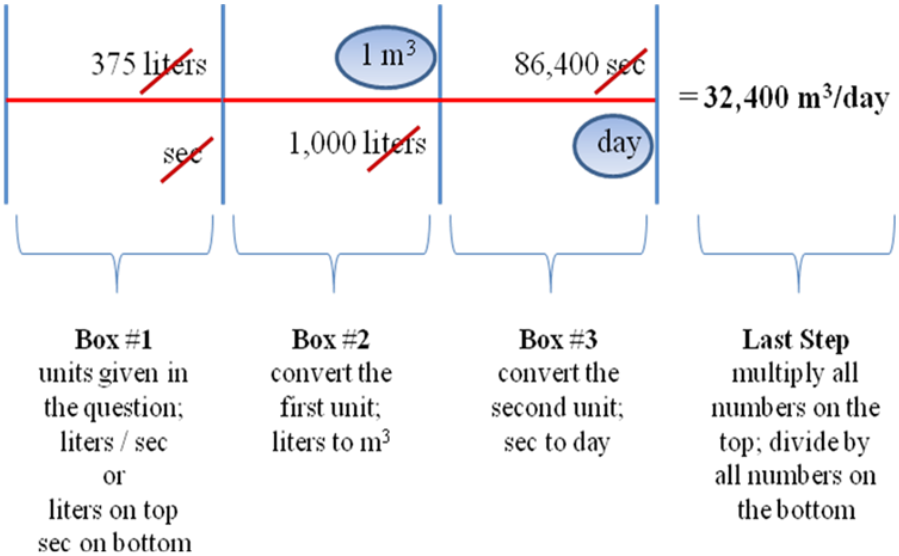


Step 8 – Now that you have achieved both of your target units, you're almost done. Just do me a favour and perform a quick visual check. Your given units are all cancelled; your target units are all achieved; and your equivalent numerical values are all placed in the right spot. You've been asked in the question to convert to m^3/day; and that's what you have remaining (not canceled) – the unit "*m^3*" is on top and the unit "*day*" is on the bottom. You're good to go.



Step 9 – Time to use your calculator. Because of where the numbers fall, now multiply 375 by 86,400 (both appear above the divide line) and divide the answer by 1,000 (which appears below the divide line). And you're done. Your final answer should be **32,400 m^3/day** (and no need to call a friend).

Let's analyze all the steps in a very quick visual way.



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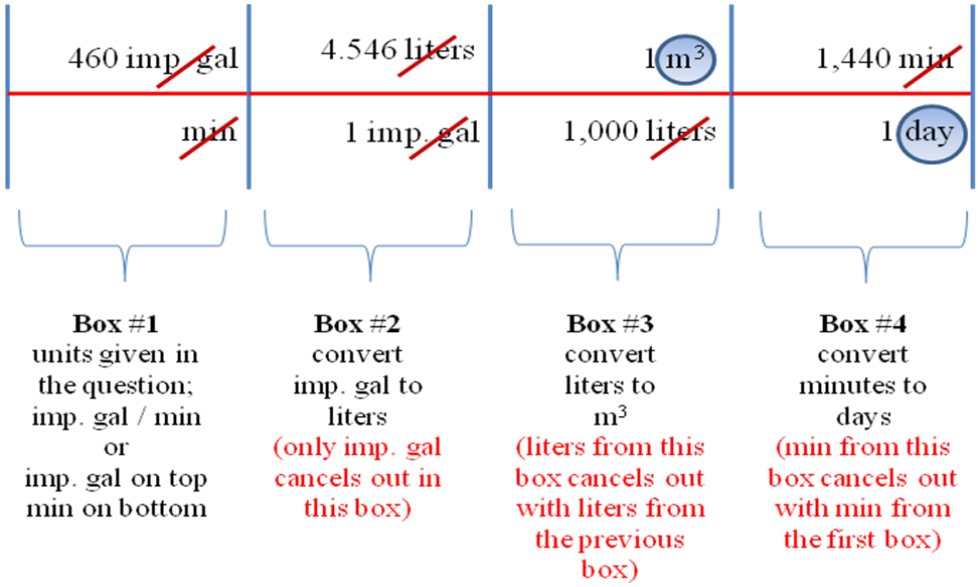
See if you can follow my method of madness with the second problem.

Problem 2 – Convert 460 imperial gal/min to m^3/day.



And the answer is **3,011 m^3/day** (multiply 460 by 4.546 by 1,440 and divide by 1,000).

I still have a few important comments to add on to this discussion. But since I am running out of space, I would like to leave those for the next issue. So stick around, and let's meet again in a few weeks (may be even practice converting some of your own units in the plant). In the meantime, please feel free to contact me with your comments, questions, and suggestions. I will be more than happy to discuss them with you. You can reach me directly at lexicon@ca.inter.net.

Why does water never laugh at jokes?

It isn't a fan of dry humor!