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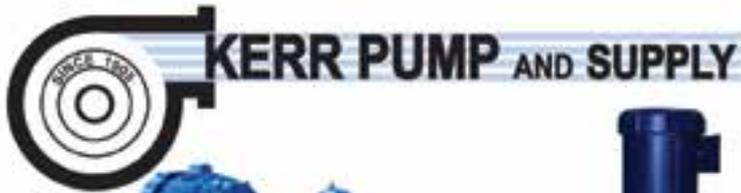
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Material may be submitted to the Editor.

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WINTER 2020



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LOOKING AHEAD TO THE NEW YEAR

KELLY GLEASON, EDITOR

Happy new year! Welcome to the winter issue of *Michigan Water Works News*!

Since I last wrote, fall was just settling in and the new leadership was taking their places. The Section held the annual Leadership Retreat this past October. I again had the privilege of attending and with others had time to reflect on the past year and plan for the new year.

The 2019 Regional Pipe Tapping Competition was hosted by Lansing Board of Water & Light this past November – read about the results on page 42.

Speaking of pipe tapping, the state competition is held during Joint Expo & Operators Day at the Lansing Center. In addition to pipe tapping, catch the meter madness and hydrant hysteria competitions, along with some great training. The two-day conference held in February is always filled with information

"THE TWO-DAY CONFERENCE HELD IN FEBRUARY IS ALWAYS FILLED WITH INFORMATION AND VALUABLE NETWORKING OPPORTUNITIES."

and valuable networking opportunities. Find more details on page 17 and mark your calendar.

As always, I'd love to hear about what you've been up to in the water world. The deadline for the Spring 2020 issue is February 8. Send pictures, stories, and updates to kelly.gleason@lbwl.com with the subject line *Water Works News*. I hope to see your submission soon. 💧



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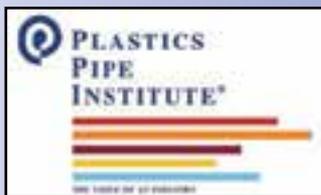


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EMERGENCY RESPONSE PLANS CRITICAL TO OUR JOB

PAUL D. REINSCH, CHAIR

In my fall article, I mentioned some of the challenges currently faced by our industry. I would like to focus this article on one of the challenges, which our fall Director's Message also mentioned. I am talking about *America's Water Infrastructure Act (AWIA)*. The Act requires Risk and Resilience Assessments (RRAs) and updated Emergency Response Plans (ERPs) based on the schedule below:

Certification Deadlines

Population Served	Risk Assessment	Emergency Response Plan*
≥100,000	March 31, 2020	September 30, 2020
50,000-99,999	December 31, 2020	June 30, 2021
3,301-49,999	June 30, 2021	December 30, 2021

*Emergency response plan certifications are due six months from the date of the risk assessment certification.

The dates shown above are certification dates based on a utility submitting a risk assessment on the final due date. Compliance with the rule is not only a regulatory requirement, but is important to our communities. The rule promotes an all-hazards approach to RRAs and related ERPs. The prior requirements were terrorism based. Threats to our systems involve much more than terrorism. Examples include natural hazards, SCADA and cybersecurity, resilience of financial infrastructure, chemicals O&M, etc. The resulting ERP should include plans and procedures, strategies, and resources to reduce risk and improve resilience including physical and cyber security. Improving our community preparedness to threats is part of our job and prudent to do.

There are many guidance documents out there, but the rule is complicated. As I understand it, there is not a lot of understanding or guidance on what the minimum requirements are to meet the required elements. If you are a Public Water System Operator in Charge (OIC), you know that you are the legally responsible person and you want to make sure that what you are certifying actually meets all the required elements and expectations.

We at the MI-AWWA would like to help all of our systems meet the requirements of the rule. Those of us that fit into the largest population served are already working on this and the deadline is looming fast for others. The larger systems typically have the necessary resources in funding or staff to accomplish the requirements using in-house staff or qualified consultants. We recognize that many of the medium- and

"IMPROVING OUR COMMUNITY PREPAREDNESS TO THREATS IS PART OF OUR JOB AND PRUDENT TO DO."

small-sized systems may not have these same resources available, to meet the requirements without some help. We are in the process of developing a one-day seminar to help medium and small systems to meet the AWIA requirements. Visit the EPA website at www.epa.gov/waterresilience for more details on the new Act. 💧

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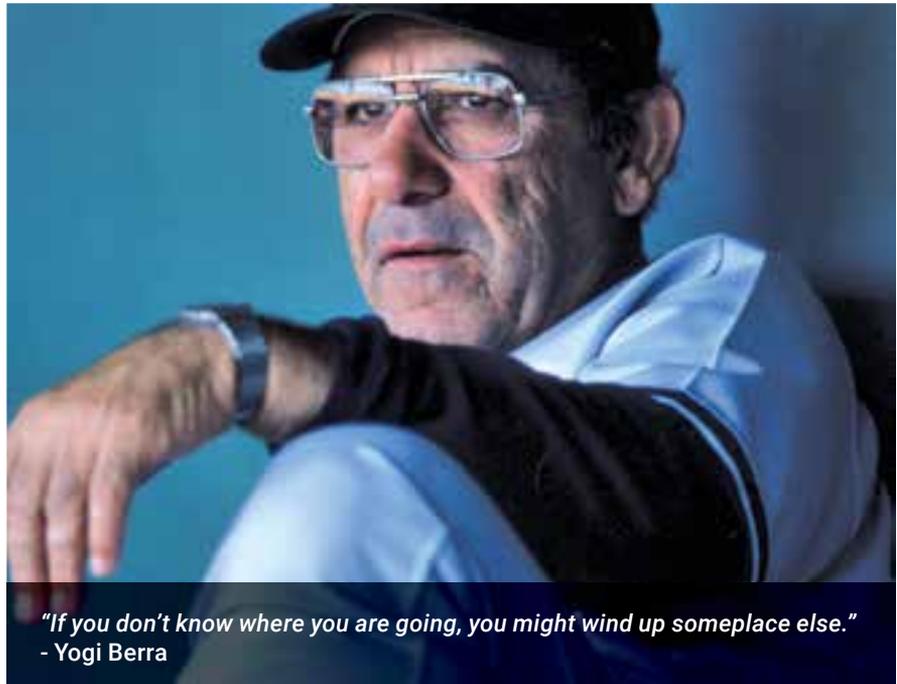
Since the World Series just ended as I write this article and I have both baseball and strategic planning on my mind, I thought that quote hit the mark. Both AWWA and the Michigan Section are starting an update of their strategic plans to discuss "where we are going," and I'd like to give you a quick update on where we are at in the process.

The AWWA Board of Directors started an update of the Strategic Plan in June 2019, with the goal of having a new Strategic Plan in place by June 2020 and distributed at ACE20. Past President David Rager and CEO David LaFrance will lead the Strategic Planning Committee. The committee is comprised of 15 past and current board members, including past Vice President Mark Coleman. The committee has held several conference calls leading up to a two-and-a-half-day workshop in Denver. The committee will have a draft Strategic Plan for AWWA Board consideration at the winter board meeting. Once the plan is available, I will communicate with Michigan members.

The Michigan Section Board has also started the process for updating their Strategic Plan. We have already begun the process of reviewing our Vision, Mission, and Core Principles at this year's Leadership Retreat. We plan to hold a workshop and listening sessions for soliciting member input on the plan, so stay tuned. The goal is to have a new Strategic Plan completed by September 2020 at MI-ACE20 in Port Huron.

The Growing Legionella Problem

The other topic that I wanted to bring to your attention is Legionella. I read Steve Via's article in the October issue of Journal AWWA regarding Legionella and



it piqued my interest, so I downloaded the National Academy of Sciences, Engineering, and Medicine study entitled *Management of Legionella in Water Systems*.

The opening line was a shocker: "Legionnaires' disease afflicts and kills more people in the United States than any other reportable waterborne disease." The reported incidence of Legionnaire's Disease has increased five-fold since 2000 to about 2.5 incidence cases per 100,000 population, and with a fatality rate of three to 33%, the trend is heading in the wrong direction.

Fortunately, AWWA has resources to help you navigate these troubled waters. The AWWA website is the best place to get started. The Resource Topics are listed under the Resources – Tools section and this will take you to 23 topics of concern for water professionals. On the Waterborne Pathogens page, all the

resources are described, including the relevant Manuals of Practice, Events, Education, Policy and Advocacy, and how to get involved with AWWA committees working on the subject. They even provide links to related resources.

We can't all be experts in every subject related to our ever-growing list of responsibilities as drinking water professionals. However, thanks to the vision of 22 people that met in St. Louis in 1881 to form AWWA, we can work together as a team of more than 50,000 members to leverage our collective knowledge for the betterment of our members and the public. So, as you face challenges from lead and copper rules to PFAS contamination, remember you are not in this alone. Take advantage of your membership and if you aren't a member, consider this your invitation to join the team. 💧

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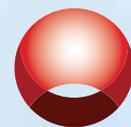
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TELLING THE WATER STORY

BONNIFER BALLARD, EXECUTIVE DIRECTOR

I have spent most of my career helping non-profits to tell their story – from survivors of torture to survivors of cancer, from nuclear scientists to water professionals. These groups all have something in common – to help people outside our profession (or circumstance) understand the issues we face and why they should care, we have to get really good at telling our story... telling the water story.

I have been thinking a lot about this lately. We can all list the factors that make telling the water story more important than ever – public distrust, competing funding priorities, workforce issues. The list goes on. If we are to not only survive as a sector but also thrive in today's environment, we must get really good at telling the water story.

According to Contently, a web-based digital content company, there are four key elements to good storytelling: reliability, novelty, tension, and fluency. While there are great explanations online for why these four work for the human brain, here's my simplified version:

"TO HELP PEOPLE OUTSIDE OUR PROFESSION (OR CIRCUMSTANCE) UNDERSTAND THE ISSUES WE FACE AND WHY THEY SHOULD CARE, WE HAVE TO GET REALLY GOOD AT TELLING OUR STORY."

Relatability: What you are saying has to be relatable. It has to offer some elements of what the person listening can grab onto quickly.

Novelty: What you are saying has to be new in some way. We all naturally are drawn to what's different.

Tension: What you are saying needs to offer some sort of tension or conflict, and then resolve that tension. It doesn't have to be big and scary, but tension is what keeps your listener engaged.

Fluency: What you are saying has to be in language that your listener can understand. In the case of water, don't use acronyms like LCR or MCL, or words like turbidity. Use words your listener already knows.

We tend to do these naturally, even if we're not aware of it. But for some

reason, when we start talking about water, we forget all of this and start talking regulations and acronyms. We need to get better at remembering and using these four elements.

The Section wants to help. You may have seen already that MI-AWWA has partnered with MWEA to hold a media training during Joint Expo & Operators Day. If you think you may ever be in a position of talking with a reporter, you need this short, interactive class. MI-AWWA's Communications Council is planning a full-day workshop on Communications for anyone who just wants to be a better communicator.

Perhaps with some effort, we can tell the water story and people will actually listen and remember. 💧

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Meeting the MI-AWWA Staff Team

In 2011, the Section chose to hire its first staff. Many of you remember Eric Way and Dave Timm, who volunteered for many years before retiring from the state and decided to continue to serve the Section as paid staff. They and the boards they served set the organization on a path for growth.

Today, the Section has six employees to handle the operations and logistics of serving AWWA members in Michigan. Here is the staff team:



ARIEL

Ariel Veneziano is the Operations Coordinator. She is responsible for bookkeeping, financial reporting, required nonprofit reporting, and all office management activities. If you have a question about a volunteer budget, an invoice, or are seeking reimbursement for a Section expense, reach out to Ariel. Ariel joined the staff team in 2015.



ERIC

Eric Johnson is the Meetings Manager. He is responsible for the logistics of all training events and conferences as well as assisting leadership in program development. He works closely with the Conference and Recognition Council and the Education and Training Council. If you have a question about attending, exhibiting, sponsoring, or planning an educational activity, reach out to Eric. Eric joined the staff team in 2014.

BONNIFER

Bonnifer Ballard is the Executive Director. She is responsible for the day-to-day operations, management of staff, implementing the strategic plan, and working closely with leadership to identify emerging issues and develop new member programs and services. She also provides input to the Section's major initiatives such as Joint Expo & Operators Day and MI-ACE. She works with the Government Affairs Council and the Strategic Partnership Council. If you have an idea or feedback about Section activities or the water sector in Michigan, reach out to Bonnifer. Bonnifer joined the staff team in 2014.



ERIKA

Erika Ballard is the Membership Coordinator. She is responsible for working with the Membership Council on member recruitment and retention, onboarding new members, and helping volunteers to connect with meaningful activities. She also assists with event registration. If you have a question about joining AWWA, getting involved as a volunteer, or need help registering for an event, reach out to Erika. Erika joined the staff team in 2019.



CHRIS

Chris Willemin is the Database Administrator. She is responsible for maintaining the data integrity of the Section database. If you need help logging into your profile on the Section website, reach out to Chris. Chris joined the staff team in 2016.



STACEY

Stacey Kukkonen is the Section Coordinator. Stacey is responsible for marketing and communication as well as cross training with other staff to help with overflow work. She works with the Communications Council and the Government Affairs Council and supports Section leadership with their activities. If you have a question about the Section's communication activities, about the marketing of a particular event, or need help registering for an event, reach out to Stacey. Stacey joined the staff team in 2019.

Although staff have specific responsibilities, serving members is everyone's responsibility. Water professionals are welcome to reach out to any of the staff with questions, comments, or for assistance.

The staff are listed on the Section website under About Us > Staff List. 💧

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PREVIEW

Top-notch education, collaboration, and networking, as well as a large exhibit floor showcasing the latest technologies, products, and services the water industry has to offer.

OPERATORS DAY

Make plans with your colleagues to register and attend Operators Day training sessions, which include admission to the Exhibit Hall and lunch! Come hear the latest in technologies and approaches that best serve your customers. Different programs are offered Tuesday and Wednesday. Choose one or opt to attend both.

0.3 DW & WW CECs (Each Day) | Course Code: 338 | Category: Technical

TUESDAY, FEBRUARY 4		WEDNESDAY, FEBRUARY 5	
Tuesday Operator Training will be offered three times.		Wednesday Operator Training will be offered twice.	
15 min	Welcome and Introductions	Welcome and Introductions	
45 min	Transforming Water and Wastewater Utility Operations with GIS <i>Robert Rodriguez, Esri</i>	PFAS in Plainfield Township: A Case Study <i>Don Petrovich, Plainfield Township</i>	
45 min	Dos and Don'ts of Pump Installation <i>Tim Sullivan, Hubbell, Roth & Clark</i>	Active Shooter and How to Respond in the Field <i>Scott Martzke and Lee Fuller, MI National Guard Emergency Management Program</i> <i>Sgt. Michael Foley, MI State Police Active Shooter Team</i>	
15 min	Break	Break	
45 min	The Future of Controls and SMART <i>Michael Lunn, Primodal</i> <i>Sarah Huber, Primodal</i>	Handling Succession During Construction <i>Doug Engelsman, City of Zeeland</i> <i>Adam DeYoung, Moore & Bruggink</i>	
45 min	Creating a Critical Valve Program for the Great Lakes Water Authority's Transmission System <i>Wayne Pratt, Wachs Water Services, A Xylem Brand</i>	Using Condition Assessment Data to More Efficiently Manage Your Pipelines <i>Steve Bruskiwicz, Xylem/Pure Technologies US</i>	

Infrastructure Funding Seminar

How to pay for everything is the \$1 million question. This half-day session provides the latest in funding approaches, as well as funding source ideas for your water or wastewater system. Offered Tuesday only.

- USDA Financing
- EGLE Financing
- Other Funding Opportunities
- Financial Management Lessons Learned

0.2 DW & WW CECs

How to Give a Media Interview

With the state of the water sector in Michigan, everyone needs to have basic skills in talking to the media. Attend this workshop to help hone your skills. Offered Wednesday only.

- All About Reporters
- Framing Your Message
- Key Messages
- Practice Interviews
- DW & WW CECs Approval Pending

How to Talk to Your Legislator

Come hear from Midwest Strategy Group about the policies that will most affect the water and wastewater sector in Michigan. Then, get some practice preparing for and holding a visit with your legislator. Offered Wednesday only.

- Michigan Policy Update
- Case Studies
- Mock Policy Visits
- DW & WW CECs approval pending

Water Careers Experience

The Young/New Professionals are hosting a new kind of learning experience for college and high school students on careers in water. This complimentary event offers students the opportunity to receive a guided tour around the Joint Expo exhibit hall. Then, travel to the John Dye Water Treatment plant nearby for a guided tour of this historic building. Lunch is included. Young and New Professionals willing to act as docents and students planning to attend, please RSVP to info@miwater.org.

EXHIBIT HALL

Joint Expo offers the largest drinking water and wastewater exposition in the state of Michigan for utility personnel and consultants by equipment suppliers, manufacturers, and consulting engineers who want an effective method to exhibit their products and services to industry professionals.

It is an opportunity to preview new equipment and technologies, consult with exhibitors on your water projects, current and planned, evaluate how your facility or business compares to where you need to be in the future, while you shop, talk, listen, and assess what you need. Visit more than 150 companies that provide products and services to the water and wastewater sectors. You will be able to talk to consultants, compare products, try out software, and examine heavy equipment up close. There are other activities in the Exhibit Hall as well.

Tuesday 9:30 am – 4:00 pm

Wednesday 8:30 am – 2:00 pm

Attendees walking the Exhibit Hall earn up to 0.2 CECs for water and wastewater operators. Access to the Exhibit Hall is \$10. All attendees must register and have a badge to enter. Attendees of training automatically have access to the Exhibit Hall. If you want to come only to walk the Exhibit Hall, register for an Exhibit Hall Only Pass.

COMPETITIONS

Watch some of the fastest teams in the country compete in a variety of water-related contests.

Water Main Tapping Contest

See How Fast a Water Main can be Tapped

Tuesday 12:00 pm

Meter Madness

See How Fast a Water Meter can be Assembled from a Bucket of Parts

Wednesday (*check website and app for times*)

Hydrant Hysteria

See How Fast a Fire Hydrant can be Assembled

Wednesday (*check website and app for times*)

SPECIAL BOOTHS**Host Booths**

Host Booths MI-AWWA and MWEA will both be in the Exhibit Hall. Stop by to get your CEC slip for the Exhibit Hall validated, to learn about membership, or to see what's coming in the water and wastewater sectors in Michigan.

Clean Water For All

Water For People, a WEF charity of choice, will be present in the MWEA booth this year. Volunteers work year-round to raise money to support clean water projects throughout the world. Stop by the MWEA booth to find out more about the many projects going on, have a little fun, and show your support.

Safe Water in Ecuador

Safe Water in Ecuador will be in the MI-AWWA booth this year. Volunteers raise money to help bring clean, safe drinking water to indigenous communities in Ecuador. Stop by to learn how you can support this important work.

SPECIAL BOOTHS

College Booths

Bay College students will be onsite Tuesday to show you what they're learning and to get better acquainted with everything water and wastewater. Make sure to stop by their booth and encourage them!

EGLE Booth

Have questions about certification? Need some clarification on a rule? Stop by the EGLE booth in the Exhibit Hall to visit with staff and get your questions answered.

Health and Human Services Booth

Interested in the real facts about fluoride in drinking water? Stop by the Michigan Department of Health and Human Services booth to learn more about this important public health treatment method.



MIXER

If you're staying in the Lansing area during Joint Expo & Operators Day, come to the Lansing Brewing Company after the Exhibit Hall closes on Tuesday to network with water and wastewater colleagues, enjoy a beverage, and maybe win a prize.

Thank you to our Mixer sponsors!

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LOGISTICS

Registration

Register for trainings by using the form on page 18 or by visiting www.jointexpo.org. Your registration includes the training of your choice, entrance to the Exhibit Hall, and lunch. Register for the Exhibit Hall Only online at www.jointexpo.org. Badges must be worn onsite at all times. Badges required for entry to the training rooms and the Exhibit Hall.

Parking

See the parking map on page 21 and on www.jointexpo.org for information on parking lots and structures. There will be complimentary shuttles, available approximately every 20 minutes from designated parking lots to the Lansing Center. Check the app for details on the day you attend.

Lodging

For those staying in Lansing, the Lansing Radisson Hotel has a block of rooms at a reduced rate for attendees of Joint Expo & Operators Day. Call 517-482-0188 to make your reservations. Remember to use promotional code AWWA20 to receive the conference rate.

Inclement Weather

Keep an eye on www.jointexpo.org or download the event app for any weather-related information pertaining to Joint Expo & Operators Day.

Event App: Attendify

New this year: Attendify, the event app for Joint Expo & Operators Day. Download Attendify and search for Joint Expo. Log in and have all the event information in the palm of your hand.

Cancellation Policy

Registration substitutions within the same organization are allowed. Written cancellations received at least seven days prior to the start of the event will be eligible for a refund, less a \$50 processing fee. Cancellations received less than seven days from the start of the event will receive no refund. Under extenuating circumstances, a credit for training may be issued. Credits are granted at the sole discretion of the Executive Director. See website for complete details.



ATTENDEE REGISTRATION

Registration Deadline: January 24, 2020

Attendee Name: _____ Title: _____

Company/Employer: _____

Attendee Email (Required): _____
(Registration confirmations only sent via email)

Yes, I would like to receive exhibit or sponsoring company materials via email.

Address: _____

City: _____ State: _____ Zip Code: _____

Cell #: _____ Work #: _____

I wish to receive Emergency and Weather Updates to my cell phone.

Emergency First and Last Name: _____

Emergency Contact Phone Number: _____ Relationship to Emergency Contact: _____

Yes, I want CEC Credit! (check all that apply)

Drinking Water CECs – Operator ID # _____

Wastewater CECs – (no ID # required) _____

Professional Development Hours

Dietary Restrictions

None _____

Other _____

By registering for Joint Expo Operators Day and related events, I (the attendee) attest that I am aware of the common dangers of travel and participating in meetings/events and will assume all liability for my participation in this conference.

EVENT(S) ATTENDING (Agendas and CEC Information Available Online at www.jointexpo.org)

TUESDAY, FEBRUARY 4: (select no more than ONE option)

Joint Expo Attendee: Exhibit Hall Pass ONLY
Show Hours: 9:30 am – 4:00 pm \$10.00

Operators Day Training
Choose Session: 7:15 am – 11:00 am
 8:15 am – 12:00 pm 12:15 pm – 3:30 pm \$115.00

Infrastructure Funding Seminar
8:30 am – 12:15 pm \$115.00

WEDNESDAY, FEBRUARY 5: (select no more than ONE option)

Joint Expo Attendee: Exhibit Hall Pass ONLY
Show Hours: 8:30am – 2:00pm \$10.00

Operators Day Training
Choose Session: 7:45 am – 11:30 am
 8:45 am – 12:30 pm \$115.00

How to Give a Media Interview
8:00 am – 11:00 am \$115.00

How to Talk to Your Legislator
9:00 am – 11:00 am \$115.00

Payment Information

Pay with check or credit card. Payment information to include card #, expiry date, CVV, card name, and card billing address if different from above.

Accessibility

For questions about accessibility or to request accommodations, please contact Kathryn Yusko at 517-641-7377 or kyusko@mi-wea.org. At least two weeks advance notice is requested.

Photo Disclaimer

Attendance at, or participation in MWEA and AWWA trainings, conferences, social events, and other association activities constitutes consent by the registrant to permit Michigan Water Environment Association to use and distribute both now and in the future the attendee's image and/or voice in photographs, videos, and audiotapes in print or electronically of such events and activities for any purpose consistent with the mission of the association without limit or liability.

Return form to MWEA by email to mwea@mi-wea.org or to PO Box 397, Bath, MI, 48808.

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Lansing Center Event Parking & Shuttle Information

To ensure your visit to Lansing for the 2020 Joint Expo & Operators Day is outstanding, please find available parking at the marked locations below. Directional signs will be nearby, and any parking assistant wearing a neon yellow vest can answer additional questions.



A Drop Off
Lansing Center
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B North Grand Ramp
 219 N. Grand Ave.
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C 1st Stop
North Capitol Ramp
 320 N. Capitol Ave.
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A 2nd Stop
College Bike Shop
 340 N. Larch St.
 Lansing, MI 48912

B 3rd Stop
Depot Lot
 637 E. Michigan Ave.
 Lansing, MI 48912

Expo Shuttle Route
 Tuesday, Feb. 4 - 7 AM - 4 PM
 Wednesday, Feb. 5 - 7:30 AM - 2:30 PM

Reception Shuttle Route
 Tuesday, Feb. 4 - 4:30 PM - 7:30 PM

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WHAT MAKES A UTILITY RESILIENT?

By incorporating resilience into a risk management framework, a utility can improve its response and recovery strategies, thereby mitigating the potential for loss of service.

By Kevin M. Morley

Resilience is defined by an array of indicators that characterize a desired end state or goal. According to Section 2013 of *America's Water Infrastructure Act (AWIA) of 2018*, resilience is the "ability of a community water system or an asset... to adapt to or withstand the effects of a malevolent act or natural hazard without interruption to the asset's or system's function, or if the function is interrupted, to rapidly return to a normal operating condition." AWIA requires community water systems serving populations of 3,300 or more to perform two tasks: (1) conduct a risk and resilience assessment and (2) prepare or revise an emergency response plan on a prescribed schedule every five years, starting in 2020. For more information, see *Priority Action on Risk and Resilience, Journal AWWA*, February 2019 (<https://doi.org/10.1002/awwa.1229>).

Drinking water and wastewater systems have been designed to be resilient given the critical functions they provide to the communities they serve. However, various incidents have revealed the need for a more strategic perspective to resilience that goes beyond some of the tactical actions typically defined in an emergency response plan. This need led to the development of the Utility Resilience Index (URI) as a means to provide an all-hazards, system-level assessment of resilience.

PUTTING THE URI INTO PRACTICE

The URI is based on 12 indicators of resilience that a utility can readily and quickly assess to determine where potential gaps or opportunities exist to improve

its capacity to respond and recover from an incident. These resilience indicators were selected based on findings from historical records, after-action reports, best practices, and lessons learned from multiple incidents. When considered as a whole, the indicators provide a snapshot of a utility's resilience capacity.

The URI includes two classes of indicators that either affect utility functions or the community served:

- **Operational (O)** indicators reflect the utility's tactical capacity to react quickly and/or cope with various incidents that have the potential to disrupt service.
- **Financial (F)** indicators reflect the utility's fiscal capacity to react quickly and/or cope with various incidents that have the potential to disrupt revenue and costs.

Port Aransas, TX, suffered severe damage during Hurricane Harvey in 2017. A San Antonio Water System crew was thanked by a Port Aransas resident for restoring water to the community. TXWARN fielded, responded to, or coordinated Hurricane Harvey response and recovery requests from more than 50 utilities.

Let's apply the URI to a medium-size mid-Atlantic utility that is considering AWIA and what actions may be beneficial after some close calls in recent years. The utility's manager inputs the utility profile to the URI and finds the utility scored a 44 out of 100. What does that mean? It means there is a lot of opportunity for improvement, including accepting certain limitations that should inform strategies for alternatives, as it

may not be feasible to 'fix' all the limiting indicators. Consider the following URI inputs, as reflected in the accompanying table on page 29.

O1: Emergency Response Plan (ERP)

shows that while the utility has a plan, it hasn't been exercised with tabletop or functional exercises. In addition, the utility hasn't prepared any resource typing for its system that could help the utility's staff determine what they may need to request from others and what they may be able to provide others during an incident. This is all about pre-incident planning and preparedness, which reduces the stress and chaos associated with an actual incident. Training, exercises, and resource typing are examples of strategies, plans, and procedures that support the intent of AWIA's ERP provisions. For more information, download AWWA's new Water Sector Resource Typing Guidance manual at <https://bit.ly/2G7hczw>.

O2: National Incident Management System (NIMS)

Compliance is voluntary, but it's an eligibility requirement for certain federal homeland security grant programs. The utility has participated in basic awareness training available from the Federal Emergency Management Agency and the US Environmental Protection Agency (USEPA). However, staff who are most likely to lead (i.e., the incident commander) would benefit from higher-level training to facilitate engagement with other stakeholders during a significant incident. Understanding

the process for incident management tracking and documentation pre-incident is much better than learning it while trying to manage an emergency.

03: Mutual Aid and Assistance has been critical to water-sector resilience for years. The value of these agreements has been demonstrated time after time, spanning myriad incidents from hurricanes to earthquakes to blizzards. This utility is part of its state's Water/Wastewater Agency Response Network (WARN), which provides state-level support and means by which interstate mutual aid can be facilitated.

04: Emergency Power for Critical Operations is often the rate-limiting factor in recovery following an incident that affects power supply. This utility reports the ability to sustain power for critical operations for up to 24 hours, which is likely limited by fuel capacity. Regulation can also hamper investment in backup power generators, as their use during nonemergency periods often triggers stringent *Clean Air Act* limits. The

cost of generators has made them a key shared resource among WARN utilities, especially in regions depending on multiple booster pump or lift stations.

05: Ability to Meet Minimum Daily Demand or Treatment is at the core of a utility's function. In the case of a drinking water system, how long can typical daily demand be sustained? The answer depends on a combination of finished water storage and, where applicable, the ability to service customers with gravity. Whatever the threshold, this represents a critical planning decision point at which alternative water supply options may become necessary. This is one of the new provisions in AWIA that a utility is expected to determine. Resources such as the USEPA's report *Planning for an Emergency Drinking Water Supply* (<https://bit.ly/32zADL0>) can be used to assess options and consider how distribution would be achieved in coordination with state/local partners. In less than 24 hours, this utility would be in crisis, which could be caused by source water contamination, cyanotoxins, or the plant's physical

impairment from a natural or man-made incident. This low threshold suggests that some critical planning is needed to ensure options to mitigate the impacts on the community are developed and ready to be implemented if necessary. AWIA requires systems to develop alternative source water options.

06: Critical Parts and Equipment is an important factor in recovery, especially in this era of just-in-time delivery. A robust asset management program may aid a utility considering this indicator. This utility has a moderate maintenance yard with a limited stock of critical spares, meaning it could take several weeks to locate and deliver a replacement. Mutual aid has facilitated the location and delivery of unique parts. It's important to consider these limitations within a risk and resilience assessment, and staff knowledge should support preparation of a 'what if' strategy if a spare part isn't economically feasible. Resource typing can also help a utility assess the limitations of its capacity to assist others and identify resources it may need to request.

UTILITY RESILIENCE INDEX (URI) WORKSHEET

The URI is the product of the weighting developed for each indicator (V_{ij}) and the maximum value indicated in the utility profile (w_j).

Utility Resilience Indicators (j)	Utility Profile	w_j	V_{ij}	$MAX w_j \cdot V_{ij}$
01: Emergency Response Plan (ERP)			0.1389	0.0347
No ERP		0.00		
ERP developed and/or updated	x	0.25		
Staff training on ERP (i.e., Tabletop)		0.50		
Resource typed assets/teams defined and inventoried		0.75		
Functional exercises on the ERP conducted		1.00		
02: National Incident Management System (NIMS) Compliance			0.1561	0.0781
No ICS/NIMS training		0.00		
ICS 100/200 provided to key staff	x	0.25		
ICS 700/800 provided to key staff	x	0.50		
ICS 300/400 provided to key staff		0.75		
Utility certified as NIMS compliant		1.00		
03: Mutual Aid and Assistance			0.1868	0.1401
None		0.00		
Mutual aid/intramunicipal (within own city/town agencies)		0.25		
Mutual aid/local-local (with adjacent city/town)		0.50		
Mutual aid/intrastate (e.g., Water/Wastewater Agency Response Network [WARN])	x	0.75		
Mutual aid/interstate and intrastate		1.00		
04: Emergency Power for Critical Operations			0.0595	0.0149
None		0.00		
Up to 24 hrs	x	0.25		
25—48 hrs		0.50		
49—72 hrs		0.75		
Greater than or equal to 73 hrs		1.00		
05: Ability to Meet Minimum Daily Demand (Water) or Treatment (Wastewater)			0.0966	0.0483
None		0.00		
Up to 24 hrs		0.25		
25—48 hrs	x	0.50		
49—72 hrs		0.75		
Greater than or equal to 73 hrs		1.00		
06: Critical Parts and Equipment			0.0878	0.0220
3—4 weeks or greater		0.00		
1 — <3 weeks	x	0.25		
3 — <7 days		0.50		
1 — <3 days		0.75		
Less than 24 hrs		1.00		
07: Critical Staff Resilience			0.0605	0.0303
<10%		0.00		
10—25%		0.25		
>25—50%	x	0.50		
>50—75%		0.75		
>75—100%		1.00		
				44.2%

Utility Resilience Indicators (j)	Utility Profile	w_j	V_{ij}	$MAX w_j \cdot V_{ij}$	Utility URI
F1: Business Continuity Plan (BCP)			0.0463	0.0000	
No BCP	x	0.00			
BCP under development		0.25			
BCP completed		0.50			
BCP fully implemented		0.75			
Annual commitment of resources and BCP exercised		1.00			
F2: Utility Bond Rating			0.064	0.0480	
Caa, less than or equal to		0.00			
B-Ba		0.25			
Baa-A		0.50			
AA	x	0.75			
AAA		1.00			
F3: GASB Assessment			0.0176	0.0044	
Less than 20% assessed		0.00			
20—40% assessed	x	0.25			
41—60% assessed		0.50			
61—80% assessed		0.75			
Greater than 81% assessed		1.00			
F4: Unemployment			0.0459	0.0115	
>5% national average		0.00			
>2—4% national average	x	0.25			
±2% national average		0.50			
<2—4% national average		0.75			
<5% national average		1.00			
F5: Median Household Income			0.04	0.0100	
<10% state median		0.00			
<5—10% state median	x	0.25			
±5% state median		0.50			
>5—10% state median		0.75			
>10% state median		1.00			

Source: Morley, Kevin. Evaluating Resilience in the Water Sector: Application of the Utility Resilience Index (URI). PhD diss. George Mason University, 2012.

07: Critical Staff Resilience is the percentage of response-capable staff available for critical operations and maintenance positions who have cross-trained backups. Given the size of this utility, there is a fair amount of cross-training – likely out of necessity. Utilities that have prepared for staffing outages for pandemic planning or work stoppage may have a higher level of capability in this category.

F1: Business Continuity Plan (BCP) provides an indication of the integration of risk management into the utility’s culture. A BCP is often where/how a utility has addressed some level of cybersecurity risk management as part of a disaster recovery plan. In addition, a BCP is typically where continuity of enterprise functions like payroll and accounting are documented. This utility hasn’t developed a BCP, suggesting there is likely a need to address critical AWIA provisions related to securing cyber assets and financial infrastructure.

F2: Utility Bond Rating indicates a utility’s financial stability and capacity to repay debt. This utility has received a good rating from an independent bond agency, and the utility’s fiscal health is sound.

F3: GASB Assessment entails determining how the utility has evaluated its infrastructure risk. Specifically, it determines how much of the system has undergone a condition assessment to evaluate the remaining life of its assets so rehabilitation and replacement investments can be properly considered with financial risk management plans. This utility has assessed a small proportion of its system, meaning it doesn’t have a complete estimate of prospective future financial obligations.

F4: Unemployment and F5: Median Household Income are included to reflect the capacity of the community to react quickly and/or cope with various incidents that have the potential to disrupt utility revenue and/or influence operational response. Research has demonstrated that communities with high levels of unemployment and low median household income are more vulnerable. Although a utility can’t directly alter such measures, it can provide key indicators of the potential impact a loss-of-service incident may have on the population served.

LOOKING AHEAD

Collectively, the URI provides a utility with a high-level assessment of its general resilience status. Preparing the URI is also a good opportunity to consider risk and resilience management options to ensure AWIA compliance. Also, AWWA has developed free training on AWIA and offers resources that facilitate compliance, all of which are part of the association’s Utility Risk and Resilience Certificate Program (www.awwa.org/risk).

Kevin M. Morley is AWWA’s federal relations manager at the association’s Government Affairs office (www.awwa.org) in Washington, DC.

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PIECES FROM THE PAST

A PIONEER OF PUBLIC HEALTH

By Janice Skadsen, Historical Preservation Committee

If you have ever done algae or plankton analysis, then you are familiar with the Sedgwick-Rafter cell: the standard device for microscopy analysis of these wee organisms. What you may not know is that this device was developed specifically for the analysis of drinking waters and surface waters. In 1889, William T. Sedgwick and George W. Rafter developed a protocol for concentrating water samples and then placing that sample in a modified glass slide designed to contain a calibrated volume of water and thus allow for enumeration of microscopic organisms. This Sedgwick-Rafter cell is still in use today.

William T. Sedgwick was an important figure in the development of public health protection for drinking water in the US. Born in 1855, he attended Yale University as an undergraduate and went on to John Hopkins University where he obtained his PhD in Physiology. Sedgwick was a member and president of the New England Water Works Association. He was employed and eventually headed the Department of Biology at MIT. In conjunction with George C. Whipple and Milton J. Rosenau, Sedgwick established the Harvard-MIT School for Public Health Officers. He instilled in his students the need to develop three basic behaviors:

- A vision of the subject in relation to the broader world.
- An honest method of working to seek the truth.



- And an enthusiasm for service to the profession the public.¹

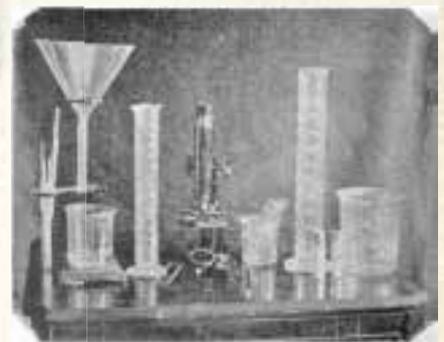
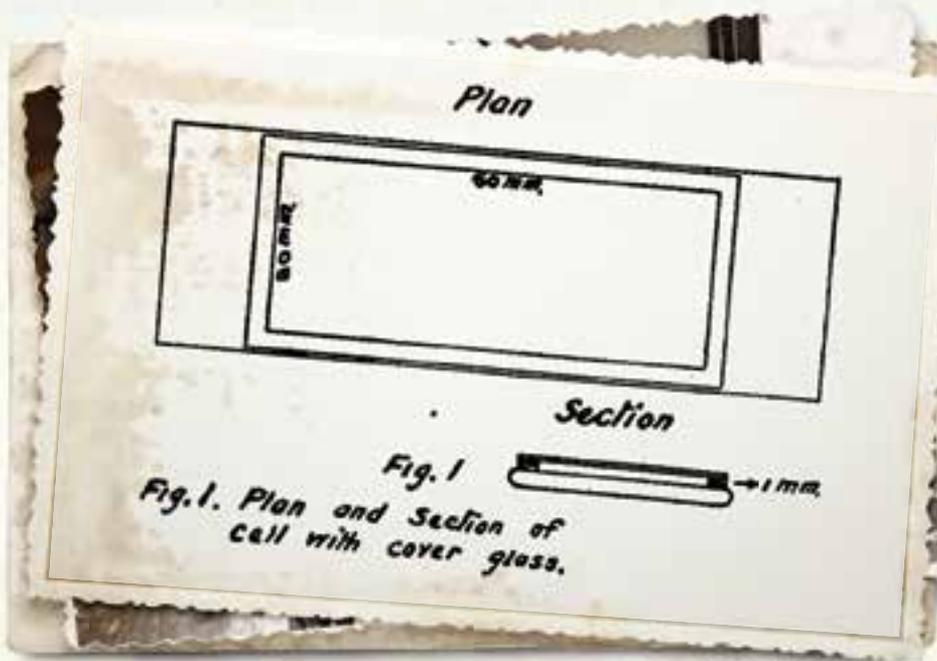
Among his students were George Warren Fuller and Allen Hazen. Despite his lifelong dedication to public health, he opposed John L. Leal during the Jersey City trials by his denial of the value of chlorination of a water supply.² Instead he advocated for construction of sewer and a wastewater treatment plant in order to improve Jersey City's water supply and drinking water quality. Sedgwick was essentially an early advocate of source water protection.

George W. Rafter was born in 1851; he was a contemporary of Sedgwick. He

attended college at Cornell University and became a civil engineer. Rafter was an active member of many organizations including the Microscopical Society and AWWA. He was a devoted microscopist. Much of his career was spent in waterworks in New York, though he also pursued opportunities in wastewater. He also performed work in Michigan for the municipal system of Traverse City! He died in Austria pursuing other passions – Roman history and English literature. Rafter left behind a wealth of publications estimated at 165 in number. In his book *The Microscopical*



IN 1889, WILLIAM T. SEDGWICK AND GEORGE W. RAFTER DEVELOPED A PROTOCOL FOR CONCENTRATING WATER SAMPLES AND THEN PLACING THAT SAMPLE IN A MODIFIED GLASS SLIDE DESIGNED TO CONTAIN A CALIBRATED VOLUME OF WATER AND THUS ALLOW FOR ENUMERATION OF MICROSCOPIC ORGANISMS. THIS SEDGWICK-RAFTER CELL IS STILL IN USE TODAY.



Examination of Potable Water,³ he states that “the number and variety of animaculæ will surprise anyone and will serve to enforce his argument of the necessity of filtering water for household use.” Most notably, he authored the paper *Biological Examination of Potable Water*.⁴ Published in 1890, this paper describes the method and counting cell for algae enumeration based on a design by Professor Sedgwick. Thus began the formal usage of the Sedgwick-Rafter cell.

¹ Jordan, E. O., George C. Whipple, and Charles-Edward A. Winslow (1924). *A Pioneer of Public Health: William Thompson Sedgwick*. New Haven, CT: Yale University Press.

² McGuire, Michael J. (2013). *The Chlorine Revolution: Water Disinfection and the Fight to Save Lives*. Denver, CO American Water Works Association.

³ Rafter, G.W. (1892). *The Microscopical Examination of Potable Water*, New York, NY: D. Van Nostrand Company.

⁴ Rafter, G. W. (1890). *Biological Examination of Potable Water*. Columbia University in the City of New York. 💧





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PARTNERSHIP FOR SAFE WATER

By Cheryl Porter, Great Lakes Water Authority

The Great Lakes Water Authority operates five water treatment facilities in the Detroit area that draw water from Lake Huron and the Great Lakes tributary, the Detroit River. With the Great Lakes as our source, GLWA is uniquely positioned to provide its communities with water of unquestionable quality. We more than surpass acceptable water quality standards, thanks to our expert staff's oversight of quality control, technology and innovative treatment processes. To improve and optimize system efficiency, we invest significant time maintaining and improving our facilities. One way we strive for continual improvement is subscription and participation in the Partnership for Safe Water (the Partnership).

The Partnership is a voluntary effort that more than 300 surface water utilities across the country have undertaken to improve drinking water treatment performance and exceed current regulatory requirements. While several organizations, including the US Environmental Protection Agency (USEPA), Centers for Disease Control (CDC) and Prevention, and Water Research Foundation (WRF) work to establish the science for addressing risks, the Partnership provides implementable actions to minimize public health risks outside of the regulatory arena. The Partnership program is managed by utilities, for utilities. It provides operators, field staff, managers, and administrators with tools to assess the operation and performance of treatment plants and distribution systems. It develops plans to improve performance beyond even proposed regulatory levels while developing a culture that continuously identifies ways to improve performance. Utility accomplishments are recognized with Partnership awards that honor efforts for continuously optimizing treatment plant and distribution system operation and performance.

GLWA was created by the City of Detroit and the surrounding counties of Macomb, Oakland, and Wayne.

DWSD completed self-assessments for its Southwest Water Treatment Plant in 1998. The Lake Huron Water Treatment Plant (WTP) and Northeast WTP received the Director's Award in 1999.

Of the five water treatment plants, Water Works Park WTP and Springwells WTP had not performed self-assessment while under DWSD control due to the new Water Works Park II plan for construction in 2002 and Springwells WTP beginning its rehabilitation their filters.

Upon its inception, GLWA recognized the benefits DWSD found from participating in the Partnership and continued in the Partnership. Since all five plants operate in full compliance with all applicable regulations beyond the required six-month minimum prior to the application date, GLWA immediately subscribed to the Treatment Plant Optimization Program to register the new Water Works Park Plant. The following paragraphs provide more details about the steps or phases of the Partnership Program.

Phase I: Commitment

Phase I requires the utility to commit to the PSW program and complete the program through Phase III. GLWA assembled its own team to conduct the Treatment Plant Optimization Program at the new Water Works Park Plant. The team was managed by Balvinder Sehgal, Special Projects for Water Operations and included the plant manager, operations staff such as water technicians, chemists, engineers, infrastructure administrator, and maintenance technician.

Phase II: Baseline Data Collection

Phase II requires the utility to collect, analyze and submit baseline turbidity data. To complete Phase II and establish a performance baseline, GLWA submitted 12 months of performance data to the Partnership including raw, settled, and combined filter effluent turbidity data within



The Partnership for Safe Water (PSW) is an alliance of six prestigious drinking water organizations:

AWWA: American Water Works Association

AMWA: Association of Metropolitan Water Agencies

ASDWA: Association of State Drinking Water Administrators

NAWC: National Association of Water Companies

USEPA: US Environmental Protection Agency

WRF: Water Research Foundation

180 days of joining the Partnership. All individual utility data are kept confidential.

The Partnership provided data collection software and self-assessment guidance describing the Partnership's systematic approach to assessing performance, design, operation, maintenance, and administration practices for each program.

Phase III: Self-Assessment

Phase III requires the completion and submission of a comprehensive self-assessment of treatment plant capacity, performance, and operations. The self-assessment process allows for the identification of Performance Limiting Factors and the development of targeted Action Plans to improve performance.



The Partnership provided Phase III support tools, including a self-assessment guides, report template, and materials checklist. Despite there being no time requirement for the completion of Phase III, GLWA staff made it a high priority to complete.

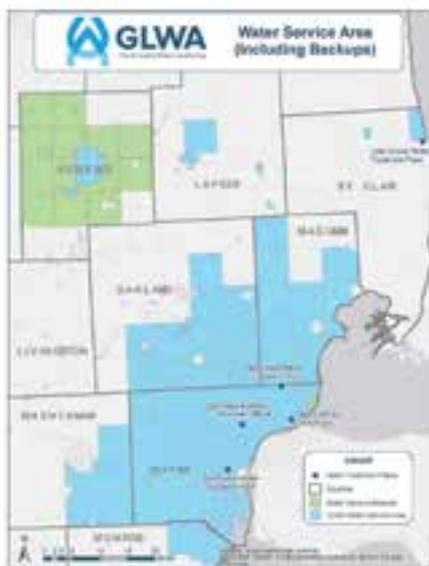
In addition to assessment of physical systems and process controls, the self-assessment requires dialogue and discussion about applications of concepts and communication between operations and maintenance. GLWA identified areas of new training that would benefit new staff, inclusive of implementing an apprenticeship program and refresher courses on jar testing for coagulant control.

Finally, the Administration assessment and area titled *Acceptance of Optimization Goals* of the self-assessment report asked the team to evaluate current performance in the culture created by leadership; staff understanding of the optimization process and the role they play in it; and leadership's expectation of excellence. Given the relatively new nature of GLWA, the team reflected on the newly developed GLWA mission statement.

The team's consistent responses in the self-assessment report reflected GLWA's internal culture of excellence and a clear understanding of optimization goals across utility staff and leadership. This strong support for the optimization process and goals led to team consensus and eventual implementation of their Action Plans.

The self-assessment report was then submitted for review by a team of utility optimization experts from the Partnership's Program Effectiveness Assessment Committee (PEAC) to ensure an effective and unbiased process. The committee evaluated the operational guidance and process control narratives relative to the utility's optimization goals as well as GLWA's history of maintaining a high level of water quality, even during challenging conditions.

The GLWA team successfully completed the assessment at Water Works Park WTP and was recognized with the Director's Award at ACE in 2019 in Denver when Balvinder Sehgal and Andrae Savage, Water Works Park Plant Manager, accepted on behalf of the assessment team.



The submission of annual treatment plant data – similar to the baseline data collection phase – is required to maintain Directors Award status. By committing to annual data submissions and performance analysis, GLWA will continue to obtain the benefits of ongoing optimization efforts on water quality.

The Partnership is a continuous improvement program and as such, utilities that continue to submit data are formally recognized by the Partnership in five-year intervals. In July 2016, GLWA was recognized at the AWWA conference and received the 10-Year Directors Award for the Lake Huron WTP, Northeast WTP, and Southwest WTP.

The Partnership for Safe Water also publishes an *Annual Data Summary Report*, communicating the combined performance of all utility subscribers. This annual report is provided to utility subscribers for the purposes of benchmarking and performance comparison, and provides staff the opportunity to step back from their daily tasks, evaluate current procedures and treatment schemes, and assess areas for improvement. The report has benefited the GLWA team by:

- instilling a drive for continual improvement.
- developing a workforce that strives for excellence.
- identifying opportunities to improve water quality.
- optimizing water treatment plant performance.
- maximizing benefit from our capital investments.

Phase IV: Optimized System

Participation in Phase IV requires demonstrating plant optimization, including meeting the PSW's goals and addressing any performance limiting factors. The Phase IV Excellence in Water Treatment Operation Awards is awarded to systems that demonstrate full optimization and meets all of the Partnership's water quality optimization goals and operational requirements. In the spirit of continual improvement, GLWA is moving forward with requirements for Phase IV, which includes maintaining good standing with its Directors Award designation with the Partnership. 💧

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What Every Operator Must Know

By Robert Miller, Education and Training Council

Recently, following a heated discussion on who should record minutes (it's always me), the Education and Training Council expressed a desire to better serve our membership by contributing more content to *Water Works News*. The idea everyone agreed to trial would be a short, concise piece on basic water system operation considered to be *What Every Operator Must Know*. Subjects could include plant or system operation, regulation, customer service, etc., but should be easy for anyone in operations to read, understand, and apply in his or her place of work. Below is our first shot:

With one of the busiest construction seasons I've ever experienced drawing to a close, our Department of Public Works was busier than it has ever been. My staff was stretched thin, and had a hard time keeping tabs on every contractor that was doing some type of new installation, repair, or modification in our water system. With such a rush under way, it was sometimes necessary to slow things down in order for the

Operator-in-Charge (OIC) to conduct the rightful oversight. The vast majority of the time we work with contractors who are honest, reputable, and only intend to do the right thing. That being said, some of the crews we work with could find themselves working across the region or across the country, and may not be 100% versed in our local rules and regulations, or the role that the OIC plays in the construction process.

As a licensed operator it is up to you to make sure these roles are defined before anyone opens up your water system. This can be particularly important in small systems without engineers and inspectors on staff. It is critically important that operators communicate with contractors on shut-downs, boil notices, disinfection procedures, sampling, return to service, etc. A great resource for this information is the AWWA manuals or the 10-State Standards. If you need help starting this conversation with anyone performing work in your community, or local officials, please reach out to the Education and Training Council via the section website at <https://mi-water.site-ym.com>. 



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CHLORIDE AND SULFATE WATER QUALITY CRITERIA IMPLEMENTATION WORKGROUP SUMMARY

By Stephen D. Guy, City of Fenton

The Department of Energy, Great Lakes and Environment (EGLE) developed a new Chloride Sulfate Discharge Rule that went into effect in August 2019. EGLE has requested input to help create the implementation plan, intended to go into effect in October 2020. EGLE invited various groups most of which discharge to surface waters of the state under an NPDES or MS-4 permit.

Michigan was the only Great Lakes state that did not yet have a maximum level for chlorides and sulfates in the discharge permitting process, so biologists on the EGLE staff developed Part Eight of Rule 57. Part Eight was developed based on the 1972 *Clean Water Act* using Tier 1 criteria. Chlorides and sulfates at certain levels are toxic to creatures that live in surface waters of the state. Substances that are toxic to living creatures are defined in Rule 57 and the use of Tier 1 criteria is the most broad and comprehensive criteria that can be used to define toxicity. Presently, NPDES permits use total dissolved solids (TDS) as an indication of pollution in discharged waters. Using only TDS was described by biologists as arbitrary and usually not effective. Chlorides and sulfates are parameters within TDS, along with various other parameters. While chlorides and sulfates will make up Part Eight of Rule 57, TDS will still be used to help characterize pollution of water being discharged.

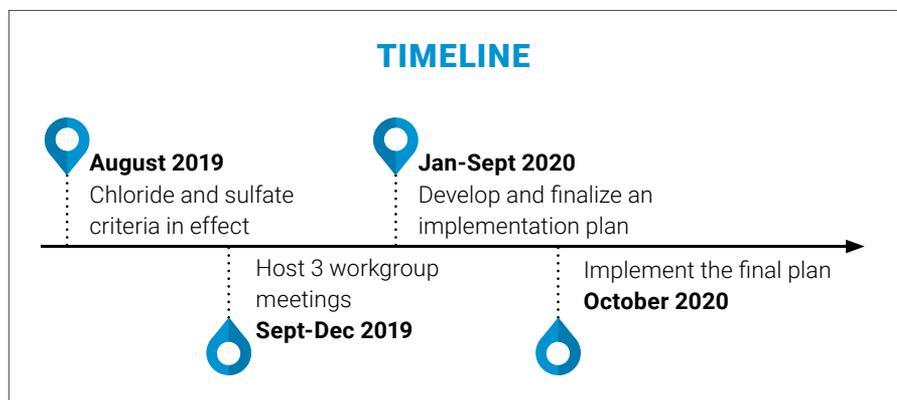
Over a period of 10 years, EGLE gathered chloride and sulfate levels discharged from industrial sources and used them to develop Part Eight, but no municipal information was gathered or used as guidance in the development.

Part Eight will include two different numbers: an acute number and a chronic number for each parameter. The acute number is the higher of the two numbers and must be measured at the discharge pipe, while the chronic number is lower and will be measured after passing through the mixing zone of a discharge water. However, if the receiving surface water does not have sufficient flow to create a mixing zone, the

WORKGROUP MEMEBERS

EGLE Staff
Phil Argiroff, Kevin Goodwin, Amanda Bosak, Jessica Stiles, and Christe Alwin

Invited Members
American Water Works Association
County Road Association of Michigan
Michigan Aggregate Association
Michigan Association of County Drain Commissioners
Michigan Department of Transportation
Michigan Environmental Council
Michigan Food Processors Association
Michigan Manufacturers Association
Michigan Municipal League
Michigan Plumbing and Mechanical Contractors Association
Michigan Water Environment Assocaition
Mining Operations



acute number will be the chronic number also. For chloride, the acute number is 320,000 ug/L and the chronic number is 150,000 ug/L. For sulfate, the acute number is 600,000 ug/L and the chronic number is 370,000 ug/L.

Entities with a current permit that are unable to meet the rule at implementation will be allowed two ways to help come into compliance with the rule by using variances and compliance schedules. Those applying for permits after implementation of the rule will be required to comply with the rule immediately.

Due to the development of Part Eight of Rule 57, entities that discharge water

to surface waters of the state will be required to meet the newly developed chloride sulfate rule. The acute and chronic numbers developed by EGLE must be met starting in October 2020. EGLE staff asked invited guests to help develop the implementation plan during three meetings the first of which is summarized here. EGLE is encouraging as much input as possible and the timeline and invited guest list is provided. If you are a group that has input or possibly want to join the last two meetings, contact Steve at 810-614-1761 or sguy@cityoffenton.org for more information. 💧

EGLE DRINKING WATER LABORATORY UPDATE

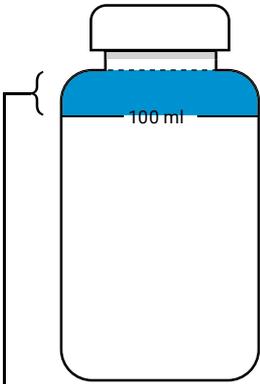
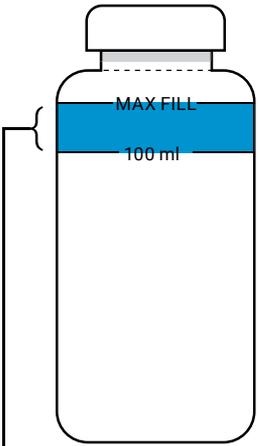
New Bacteriological Sampling Containers

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) Drinking Water Laboratory has updated its Unit 30 sample container for bacteriological testing.

The new Unit 30 sample container has a 100 mL fill line plus a new MAX FILL line to help customers collect and submit bacteriological samples for testing that meet compliance under the *Safe Drinking Water Act*. The old sample container has a 100 mL fill line only and may not allow for adequate mixing if the sample is filled above the neck of the bottle.

The new two-line sample container is now available for pickup at the laboratory and is being shipped to customers. The older one-line bottle will still be accepted by the laboratory if the sample is submitted following the guidance in the diagram. Samples collected in either sample container below the 100 mL fill line will be rejected.

Contact the laboratory at 517-335-8184 with additional questions on this Unit 30 sample container update. 💧

OLD UNIT 30 BOTTLE	NEW UNIT 30 BOTTLE
	
<p>Bottles must be filled between 100 ml line and the base of the neck, shown by the dotted line. Any samples received over or under these lines will not be tested.</p>	<p>Bottles must be filled between 100 ml line and the MAX FILL line. Any samples received over or under these lines will not be tested.</p>
<p>Contact the laboratory at 517-335-8184 with additional questions on this Unit 30 sample container update.</p>	

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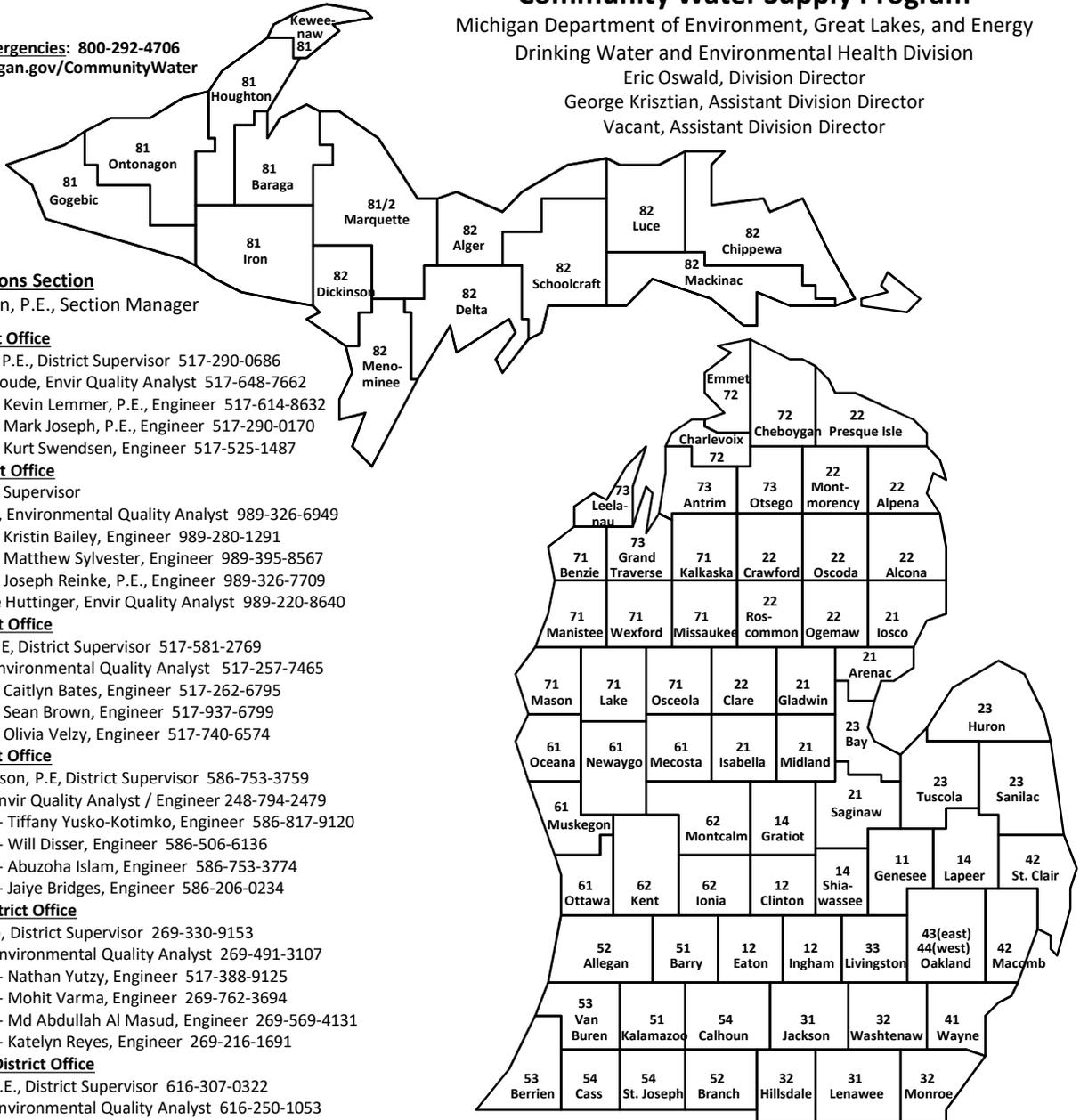
			
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Community Water Supply Program

Michigan Department of Environment, Great Lakes, and Energy
 Drinking Water and Environmental Health Division
 Eric Oswald, Division Director
 George Krisztian, Assistant Division Director
 Vacant, Assistant Division Director



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 Ernie Sarkipato, P.E., Surface Water Specialist (west) 616-307-0261
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 Heather Jackson, Environmental Quality Analyst 517-242-3997
 Steve Pennington, Environmental Quality Analyst 517-242-3923
 Vacant, Corrosion Control Engineer

* MHC = Manufactured Housing Communities



DRINKING WATER EXAM STUDY TIPS

You know the exam is coming soon. You're nervous about passing and ask yourself, "What is the best way to prepare for the exam?"

It is recommended that you start early, at least six months before the exam, and study in increments rather than trying to pull an 'all-nighter' study session the night before the exam. Pulling an all-nighter will not help you remember the material any better and will likely make you very tired the day of the exam. Another helpful tip is to utilize the Michigan Department of Environment, Great Lakes, and Energy (EGLE) study guides and make sure you are familiar with the subject areas and the common calculations used in those topics. In addition, if you are re-taking an

exam, one of the first places you should focus on are the areas you did poorly on previously. Each examinee receives an item analysis in their results letter that indicates the percentage they received in each subject area of the test. Focusing on the weak areas should improve overall performance and possibly make the difference in passing the exam.

Another common weakness for many operators is – you guessed it – MATH! EGLE's Operator Training and Certification Unit (OTCU) offers several one-day math courses that focus on helping anyone who needs extra practice in this area. 'Practice makes perfect,' so the more you practice the type of math calculations typically seen in the drinking water field,

the more confident you will be when you see those same types of questions on the exam. In addition, several online options, such as Khan Academy, have math videos that teach basic algebra and unit concepts. If you have tried these tips and are still struggling, please call EGLE OTCU at 517-284-5424 to discuss your personal situation. It may also be a good idea to invest in a math tutor for individualized learning.

To summarize:

1. Start early.
 2. Use EGLE and internet tools (study guides, item analysis, courses, Khan Academy, etc.).
 3. Practice... practice... practice.
- Good luck! 💧

To reach Michigan's water industry professionals through *Water Works News* magazine and its targeted readership, please contact me directly at

Al Whalen,
Marketing Manager
1-866-985-9782
awhalen@kelman.ca

MEMBER VOICES ARE MAKING AN IMPACT

MI-AWWA members are actively representing the Section and the water sector in Michigan. Check out the list of representatives and the activities in which members have given voice over the last year.*

EGLE PFAS RULE-MAKING STAKEHOLDER GROUP

Jaime Fleming, City of Wyoming

EGLE WATER ADVISORY COMMITTEE

Wayne Jernberg, City of Grand Rapids

EGLE WATER USE ADVISORY COUNCIL

Pat Staskiewicz, Ottawa County Road Commission
Alternate, **Clyde Dugan**,
East Lansing-Meridian Water and Sewer Authority

GREAT LAKES AND ST. LAWRENCE RIVER BASIN WATER RESOURCES REGIONAL BODY/ COMPACT COUNCIL ADVISORY COMMITTEE

Dave Koch, Black & Veatch
Pat Staskiewicz, Ottawa County Road Commission

GREAT LAKES SOURCE WATER INITIATIVE

Janice Skadsen, AWWA Representative

MI-CLEAR

Christine Spitzley, OHM Advisors

MICHIGAN PUBLIC WORKS INSTITUTE

Perry Hart, City of Battle Creek

REGIONAL ASSET MANAGEMENT PILOT ADVISORY GROUP

Brian Steglitz, City of Ann Arbor

U OF M WATER CENTER – INFRASTRUCTURE ADVISORY GROUP

Matt Parks, OHM Advisors

WATER ASSET MANAGEMENT COUNCIL

Carrie Cox, Oakland County Water Resources Commission
Randy Roost, Lansing Board of Water & Light

If you are interested in getting more involved, or if you have ideas for a particular activity or group in which the Section should become involved, email the Section at info@mi-water.org.

*Find the most current list on the Section website at <https://mi-water.site-ym.com/page/membervoices>. 

WOMEN ON WATER COMMITTEE

The Membership Council has recently taken on and/or brought back some committees. The Women on Water Committee has mainly been involved in planning and presenting at the Women on Water event at MI-ACE. The group would like to expand to have more opportunities for women in the industry to network, discuss pertinent issues, and relate to other women in the industry. The committee will fall under the Diversity Committee, which promotes diversity in both the Section as well as the workforce. If you would like to become involved, please contact Amy Vail (vaila@michigan.gov) or Terri Conerway (terri.conerway@glwater.org). The Industry Recruitment and

Outreach Committee is a joint committee with MWEA that is focused on the future of both the water and wastewater industry. They are working at recruiting and retaining a talented workforce. The committee is looking at promoting the industry at schools, job fairs, conferences, as well as talent retention. If you would like to become more involved please contact Carrie Cox (coxc@oakgov.com) or Amy Vail (vaila@michigan.gov). As always, if you would like to volunteer for Section events, committees, task forces, etc., please contact Erika Ballard (eballard@mi-water.org) or Amy Vail (vaila@michigan.gov). 

GET SOCIAL WITH MI-AWWA

The Section has a presence on social media, including LinkedIn, Facebook, Twitter, and Instagram. Look there for news, share water facts with your social networks, and see photos from Section activities.

Follow us on your platform of choice to save money on trainings, branded items, and more. 

FIND THE SECTION ON SOCIAL MEDIA

-  Facebook @MIAWWA
-  Twitter @MichiganAWWA
-  LinkedIn Michigan Section AWWA



WELCOME NEW MEMBERS

Members who joined through November 30, 2019

Joseph Amadeo, Village of Marcellus
Ryan Austin, Fishbeck
Sam Bahou, Walsh Construction/Archer Western
Jeff Barlett, Global Pump
Beverly Beard, Beard Associates, Inc.
Andrea Belanger, Fleis and Vandenbrink
Matthew Britton, Moore & Bruggink, Inc.
Jeffrey Brooks, Filtra-Systems LLC
Kimberly Bryan, Muller Textiles
Hector Castillo, Joanic International, Inc.
City of Battle Creek
Steve Cross, Genesee Co. Drain Commission WWS
Karlin Danielsen, OHM Advisors
Shannon Filarecki
Filtra-Systems LLC
Frank Fisher, Waterford Township DPW
Tyler Ganus, Southeast Berrien County Landfill Authority
Malcolm Garrett, Great Lakes Water Authority
Adam Gerlach, City of Plymouth
Michael Gerstweiler, Pribusin
Michael Gisclair, Fluid Equipment Development Company (FEDCO)
Ryan Goebel, Bay Area Water Treatment Plant
Sean Grant, METCO
Rhonda Grayer, WT Stevens Construction, Inc.
Nate Grysen, City of Wyoming Utilities Department
Jason Hall, Genesee County Drain Commission
Andrea Hayden, Fausone Bohn LLP
Marion Hester, Global Pump
Charlotte Jameson, Michigan Environmental Council
Brandon Jung, City of Kalamazoo
Christine Kelly, Blue-Water Management Solutions
Sarah Kitchen, Global Pump
Sean Knapp, Ypsilanti Community Utilities Authority

Medinah Lafaille
Amanda Laramie, METCCO
Michael Lesich, The Woodhill Group
Andrew Manchester, City of Saginaw
Brian Mangen, City of Milan
Noah Marsicek, Infrastructure Alternatives
John Monsees, MRWA
Melvin Murphy, Great Lakes Water Authority
James Oudbier, Allied Mechanical Services, Inc.
Ankur Patel, Walsh Construction/Archer Western
Emily Peters, Southeast Berrien County Landfill Authority
CJ Pokorny, Walsh Construction/Archer Western
Sarah Potgieter, University of Michigan
Ian Robinson, Blueconduit
James Rydquist, WSP
Emily Sisco, Special-Lite, Inc.
Ryan Stetler, Ypsilanti Community Utilities Authority
Robert Studt, City of Ithaca
Tyler Sulk, Infrastructure Alternatives
Troy Sutton, Great Lakes Water Authority
Eric Timmer, Allied Mechanical
Eric Vroman, City of Grandville
Steve Wagner, City of Kalamazoo
Shelby Watkins, Special-Lite, Inc.
Ryan Westling, Southeast Berrien County Landfill Authority
Latosha Whaley Lawrence, Youth For Global Health and Social Justice
Steve Widdicombe, Digested Organics
Zachary Wurster, City of Milan
Craig Wynant, Intuitive Water Systems
Scott Yonkers, City of Grandville
Alex Zychowicz, Monroe Environmental Corp.

GREAT LAKES CUP – REGIONAL TAPPING COMPETITION

Each fall, pipe tapping teams from any state bordering one of the Great Lakes are invited to the Great Lakes Cup Regional Pipe Tapping event. This event began in 2013 to bring the Midwest competitors together to help improve the competition and give the teams practice for the national competition held each June. This year's event was held in Lansing, MI.

During the competition, teams simulate the installation of a new house water service, which includes installing a copper line, and adding an on-off valve at the water main and curb stop. This is all timed and penalties are assessed for various violations from minor leaks to any safety violations that might occur.

Two men's teams and one women's team battled for the Regional Title. Teams present were the Waterdog Tappers and Lansing Lethal Ladies representing Michigan and the City

of Columbus men's team representing Ohio. The Ohio men kept their Regional Title, just barely beating the Michigan men with a time of. The Lethal Ladies completed their tap with a time of 2:39, keeping their Regional Title.

Next up for the Michigan teams will be the Joint Expo & Operators Day February 4 and 5 at the Lansing Center in Lansing, MI. The winners of the competitions will then compete in Orlando, FL, for the national titles in June. 💧



CALL FOR ABSTRACTS MI-ACE 2020

Are you working on an interesting or challenging project? Have you found a way to solve a problem that others can benefit from? Did you just save your community money with a change you've made? The Annual Conference Program Committee is now accepting abstracts through February 28, 2020, and would love to hear from you.

Topic ideas include:

- Asset Management
- Automation
- Data Science
- Design, Construction, and Delivery
- Distribution Practices
- Emerging Topics, New Technologies
- Finances, Affordability, and Rate Setting
- I & C
- IT
- Operations and Maintenance
- Pump and Valve Maintenance
- Smart Water
- Source Water or Wellhead Protection
- Storm Water Management
- Utility Planning and Management
- Utility Risk and Resilience, and Cybersecurity
- Water Quality and Sampling Methods
- Water Treatment Processes
- Workforce Development
- Your Own Fresh Idea

MARK YOUR CALENDAR

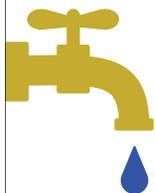
MI-ACE 2020

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September 15 – 18, 2020

Please visit the Section's Annual Conference page to submit your abstract or presentation idea or <https://www.surveymonkey.com/r/presentatmiace2020>.

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MICHIGAN SECTION AWWA NEEDS YOU!

Nominations Solicited for the Michigan Section Board of Trustees

The Nominating Committee is seeking candidates for terms beginning in September 2020 (in conjunction with the Annual Business Meeting) for the following positions:

1. Trustees: two each for three-year terms
2. Chair Elect: three-year term

Self and peer nominations are both encouraged. Please also note the bylaws of the Section indicate that we should strive to have one Board member from the Upper Peninsula of Michigan and one Board member either from the area of the Lower Peninsula north of Town Line Fifteen or from any district, area, or community in the Lower Peninsula maintaining water service to a population under 10,000 persons at the most recent Federal Census. The representation of the Board members is intended to reflect

the diverse membership of the Section, including, but not limited to, geographical locations, membership categories, utility size, gender, and ethnic origins. Any member in good standing of the Section, including a multi-section Member, are eligible to hold elective office in the Section.

Interested members are encouraged to contact any of the Nominating Committee members with any questions; committee members are Pat Staskiewicz (Chair), Jaime Fleming, Wayne Jernberg, Matt Parks, Gary Wozniak, Amy Vail, and Barbara Marczak.

Nominations are due by **March 23, 2020**, and should be submitted using the form on the Section website at <https://mi-water.site-ym.com/pagebrdnomination>. Members who have submitted nominations in previous years and would like to be considered for this year should complete a new nomination form. 💧

MI-ACE PROFESSIONAL EXCELLENCE AWARD

At this year's MI-ACE, the Conference and Recognition Council handed out the first three of the new Professional Excellence Awards. You may be asking yourself, what is this new award? Well, the Professional Excellence Award is given to up to two individuals and up to two organization each year. It is intended to provide recognition for people and groups who haven't fit into other award categories in the past. It is not constrained by work type, years of service, hair color, etc. It is simply a chance for people/groups to be recognized for doing outstanding work in our field. So, do you know an operator, educator, politician, engineer, regulator, student, inventor, or anyone else who has contributed to the water field? Or, maybe it's a group of people who hasn't been eligible for other awards in the past, like an engineering firm, project team, or municipal department. They'd be a perfect fit for nomination for Organizational Professional Excellence.

For 2019, MI-AWWA awarded two individual awards and one organizational award. Donald Petrovich and Christopher Steary were honored for their Individual Professional Excellence and the City of Battle Creek's Water Division was honored for its Organizational Excellence. So, if you notice someone, or a group of someones doing outstanding work, regardless of who they may be, nominate them for a Professional Excellence Award. Our work is important, and it's important that we recognize exemplary achievements. If we don't tell our story, who will? 💧





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AMERICA'S WATER INFRASTRUCTURE ACT OF 2018: NEW REQUIREMENTS FOR DRINKING WATER UTILITIES

By Lindsey Kirkez, OHM Advisors

America's Water Infrastructure Act of 2018 (AWIA) requires community drinking water systems that serve more than 3,300 people to complete a Risk and Resilience Assessment (RRA) and develop a corresponding Emergency Response Plan (ERP), and to recertify those documents going forward every five years. Some of the information required has likely already been identified in an Asset Management Plan.

Risk and Resilience Assessment

Community water systems must conduct an RRA and submit certification of its completion to the U.S. EPA by the following dates:

- March 31, 2020, if serving 100,000 or more people
- December 31, 2020, if serving 50,000 to 99,999 people
- June 30, 2021, if serving 3,301 to 49,999 people

The RRA should include:

- the risk to the system from malevolent acts and natural hazards.
- the resilience of system components – pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage and distribution facilities, electronic, computer, or other automated systems (including the security of such systems).
- monitoring practices.
- financial infrastructure.
- use, storage, or handling of various chemicals.
- operation and maintenance.
- capital and operations needs (optional).

For more information and guidance on developing the RRA and ERP, visit the US EPA website at: <https://www.epa.gov/waterresilience/americas-water-infrastructure-act-risk-assessments-and-emergency-response-plans>

Emergency Response Plan

The community water system must develop or update an ERP and certify completion to the US EPA no later than six months after RRA certification.

- September 30, 2020, if serving 100,000 or more people
- June 30, 2021, if serving 50,000 to 99,999 people
- December 30, 2021, if serving 3,301 to 49,999 people

Each utility deadline is unique; however, the dates here are the due dates for utilities who submit a RRA certification by the final due date according to the population served.

An ERP should include:

- strategies and resources to improve resilience, including the physical security and cybersecurity.
- plans, procedures, and equipment that can be utilized, in the event of a malevolent act or natural hazard that threatens the ability of the community water system to deliver safe drinking water.
- actions, procedures and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard.
- strategies that can be used to aid in the detection of malevolent acts or natural hazards.

For guidance on developing the ERP, visit the US EPA website at: <https://www.epa.gov/waterutilityresponse/develop-or-update-drinking-water-utility-emergency-response-plan>.

Previous Assessments

The Bioterrorism Act of 2002 required utilities to create and submit a Vulnerability Assessment (VA). The US EPA intends to destroy the VAs previously submitted. Utilities can request their VAs and certifications be returned in lieu of destruction. This can be done at wsd-outreach@epa.gov, and attach a document on utility letterhead including the utility name, PWSID, address, and point of contact.

Resources

There are several existing resources and guidance documents focused on risk, resilience, and emergency preparedness. These valuable resources can assist

and guide utilities through both the RRA and ERP processes. Some of them are highlighted here.

American Water Works Association Resources

- *Standard: G430-14 Security Practices for Operation and Management* describes critical requirements for establishing and operating a protective security program for a water, wastewater, or reuse utility.
- *Standard: G440-17 Emergency Preparedness Practices* covers the minimum requirements to establish and maintain an acceptable level of emergency preparedness based on the identified and perceived risks facing utilities within the water sector.
- *Standard: J100-10 (R13) Risk and Resilience Management of Water and Wastewater Systems* sets requirements for all-hazards risk and resilience analysis and management and prescribes methods that can be used for addressing these requirements.
- *Standard: G300 – Source Water Protection* describes critical requirements for the effective protection of source waters.
- *Manual: M19 Emergency Planning for Water and Wastewater Utilities* presents an all-hazards approach for principles, practices, and guidelines in water utility emergency planning.
- *Water Sector Cybersecurity Risk Management Tool and Guidance Document* provide the water sector with a voluntary, sector-specific approach for implementing applicable cybersecurity controls and recommendation. <https://www.awwa.org/resources-tools/resource-topics/risk-resilience/cybersecurity-guidance>
- *Risk and Resilience Certificate Program* is based on several AWWA standards and associated resources and assists in the compliance with the AWIA of 2018.
- <https://www.awwa.org/events-education/elearning-courses/utility-risk-resilience-certificate-program>

INFRASTRUCTURE ISSUES KNOW NO BORDERS

By Mark De Haan, PE, Prein & Newhof

There are certain principles within the engineering field that remain true no matter where you work, whether it is in Michigan or Imbabura Province, Ecuador.

Two of us that are part of Safe Water in Ecuador (SWIE) recently spent six days visiting the South American country. On the very first day visiting communities, two of these principles were made evident. First, it benefits the client to be thorough with initial design and design implementation. Second, unless you understand the root of the client's needs, you cannot provide the proper solution.

Our first community visit was Ambuela. In Ambuela, the community did not have sufficient flow of water, but this wasn't always the case. When the community initially protected the spring where it collects its water about a decade ago, they had enough supply. But, because the spring was not properly protected, the community now receives about one-fifth of the flow it initially did as the spring protection has broken down over time. Whether this was because the community wanted to save money up front or because the contractor did not correctly complete the work is unclear, but the problem remains the same: the community has to spend money twice where it should have only done so once because corners were cut.

The second community that we visited was Carabuela, where the community recently began the work of building more water collection in order to meet system demand. However, as we discussed this with the *aguaterro*, or system operator, it was determined that the real reason they couldn't meet demand was that there were three users that were using up to 20 times the average monthly amount, and the rate structure was such that it didn't deter the users from doing so. In addition, the amount of money being collected through monthly use was not enough to keep up on maintenance or system improvements, a fact that many of us looking at asset management or capital improvement plans here in Michigan



Engineers from CODEINSE and SWIE inspect a tank in the community of Carabuela.



Efrain Morocho, Executive Director of CODEINSE, and Leidy Yepes, engineer for CODEINSE, perform water testing in the community of San Bartolo.



Mark De Haan and Colin McCorkle of SWIE with Efrain Morocho, Executive Director of CODEINSE.

are finding to be the case locally as well. So, while the problem was presented as inadequate water supply, the actual issue was excessive water use and an improper rate structure to both curb excessive water use and keep money in reserve for system maintenance.

Of course, these problems cannot be addressed if the community itself does not accept the information that is being presented. The best way to present this information is within the context of a long-standing relationship, something the non-profit organizations we work with in Ecuador seek to establish. Life Giving Water International (LGWI) and CODEINSE (*Corporacion de Desarrollo Integral Socio Economico* – Corporation of Integral Social Economic Development) have found that the best way to build this

relationship is through the concept of co-labor. Neither LGWI nor CODEINSE want to tell the community what to do or perform the work for the community. Rather, they want to walk alongside the community, helping them with funds or technical matters as they arise. It is this idea of co-labor that leads to systems that are well-run and well-maintained and has also resulted in great success for SWIE-funded projects that have been managed by LGWI and CODEINSE.

A portion of our time in Ecuador was spent discussing potential projects which SWIE can help fund. As we discuss these projects, we'd like to take a moment to thank you for your continued support of SWIE events, especially the golf outing and chance auction at the annual conference. Thank you! 💧

YOUNG PROFESSIONALS FALL TOUR



The Young Professionals had a great turnout at the fall tour at the Lansing Board of Water & Light. Thanks to everyone that braved the rain, and thank you to LBWL for hosting the tour and to Waterworks Systems & Equipment and KSB Dubric for sponsoring the event.

The YPs also hosted a mixer in Detroit focused on new members. The group gathered to answer questions from new and interested members about the section, and network with old and new colleagues. 💧



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MI-AWWA ONLINE

The Section's current website is four years old. Members give mixed reviews about the site with some finding it easy to use and others finding it difficult to find what they are looking for. This column was created in part to help familiarize members with all the features of the website.

However, the Communication Council is considering updating the organization and design of the site. They need your input. Let us know what you think by taking the five-question survey currently available on the site. You can get to the survey from any sub-page. Or go to <https://mi-water.site-ym.com/surveys/?id=webfdbk>. 💧



ONE-DAY REFRESHER CLASS OFFERED

Do you struggle to find those make-up CECs just before your application is due to write an exam in the spring? You're not the only one.

I know some of us just run out of time to be able to fulfil the number of CECs required to write that certification and some of us are just very good procrastinators. Well, the Education and Training Council (ETC) have been working on offering those one day classes on annual basis. Preferably in late November or early December. All of which will provide the credits necessary before the application deadline. There's even discussion about making sure the class can be provided at different locations in Michigan. Lansing has always been the go-to place for training, but if the class can travel, we would have a better chance of reaching our members.

The largest obstacle is to determine topics of interest. So, our plea to all of you is to offer some educational theme for these classes. Currently, we are looking at pump and well maintenance, regulatory and SDWA review, F-4 lab practical training, plant instrumentation, and SCADA.

The ETC is open for any subject, well almost any subject. Obviously, it has to have a water connection, anything from source water to distribution and operations to management. If you have ideas please send them to info@mi-water.org. Also, if you're interested in volunteering to teach or help in any way, please let us know. 💧

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January 2020

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
		1	2	3
6	7	8	9	10
13	14	15	16	17
20	21	22 Asset Management Seminar – with MWEA Frankenmuth	23	24
27	28	29	30	31

February 2020

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
3	4	5	6	7
	Joint Expo & Operators Day in Lansing – with MWEA Lansing			
10	11	12	13	14
17	18	19 Cross Connection Seminar – Basic Lansing	20	21
24	25	26 Borchardt Conference Ann Arbor	27	28
	Basic Math & Hydraulics Gull Lake			

March 2020

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
2	3	4	5	6
	Water Treatment I Short Course Gull Lake			
9	10	11	12	13
	Short Course in Water Chemistry Lansing			
16	17 Cyber Security with MRWA	18	19	20
23	24	25	26	27
	Distribution Short Course Tustin			
	Limited Treatment Short Course Tustin			
30	31			

April 2020

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
		1	2	3 Achieving and Maintaining Compliance with the SDWA – with RCAP
6	7 Spring Regional Meeting Livonia	8 Spring Regional Meeting Kalamazoo	9	10
13	14	15 U.P. Water Works Institute Harris	16 Distribution Practices Seminar	17
20	21 Spring Regional Meeting Mt. Pleasant	22 Spring Regional Meeting Gaylord	23	24
27	28	29	30	



COMPANY	PAGE	TELEPHONE	WEBSITE
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