



THE

# LITTLE DIGGER

MINNESOTA ONSITE WASTEWATER ASSOCIATION

A Bi-Monthly Publication

August/September 2018 - Vol. 33, Issue 4

## Minnesota onsite industry to be showcased by conference field trips— Get off-site at the 2018 Onsite Wastewater Mega-Conference

Conference planners for the 2018 Onsite Wastewater Mega-Conference set for October 21-24 will showcase the Minnesota onsite wastewater industry with three field trips to choose from on Wednesday, October 24<sup>th</sup>. Conference attendees should sign-up for their choice of field trips on the conference registration. CEUs have been applied for for all three trips and approval is pending.

**Field Trip 1: Keys to Successful Designs: Gathering of Pertinent Information and Field Inspections** (Cost \$75.00, includes transportation and lunch)

This tour will combine classroom discussion and a field visit. The classroom portion will focus on design and soil considerations which are most important to collect and describe, followed by a discussion on the specific design issues at the Tashjian Bee and Pollinator Discovery Center (shown above right - <http://legacy.umn.edu/stories/tashjian-discovery-center>). The field visit will include soil pit observation and description, followed by inspection and review of system components.

**8:15 am** – Depart Hotel

**9:00 am** – Arrive at Tashjian Bee and Pollinator Discovery Center, UM Landscape Arboretum, Chanhassen, MN

*AM Classroom Discussion*

**9:00-10:00 am** – Focus on field-collected design parameters

Dave Gustafson will present an overview of important design parameters that can and should be collected during the site and soil investigation. Reporting and application of this information to septic system design will also be discussed.



Photo by Mark Luinenburg



Photo by Don Olson

**10:00-11:00 am** - Importance of soil/site descriptions  
Dan Wheeler will present an overview of critical soil and site conditions to understand and describe during a field visit. Reporting and interpretation of these properties will also be discussed.

**11:00 am** - Noon: Site-specific design concerns and solutions

Shane Steinbrecher, Dave Gustafson, Dan Wheeler will present an overview of the site-specific conditions of the Tashjian Bee and Pollinator Discover Center. We will also discuss the decision-making process for determining solutions to these concerns.

**Field Trips, Continued on Page 8**

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## From MOWA's Executive Director

### MOWA 2018 BOARD OF DIRECTORS

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*By Pat Martyn, MOWA Executive Director*

### 2018 Onsite Wastewater Mega-Conference Visits Minnesota This Fall!

As we've been announcing for the past year, the Onsite Wastewater Event of the Year is coming to Minneapolis in October! We are thrilled that our state has been chosen as the site for this year's Mega-Conference, the largest national conference focusing directly on decentralized and onsite wastewater treatment.

MOWA members should be pleased to know that the Mega-Conference is priced the same as the MOWA Annual Conference, even though it offers them a wider range of educational options. You will want to be sure to register to attend this event, since it is taking the place of our January 2019 Conference. The next MOWA Conference will be held in January 2020.

In addition to a host of educational sessions for which Minnesota CEUs are provided, you can choose from three field trips that highlight much of the innovative activities taking place in Minnesota. On Sunday evening, plan to attend the Conference Welcome Reception. On Monday evening, the Exhibitor Appreciation reception is open to all. That reception will be followed by an offsite event at US Bank Stadium, home of the 2018 Super Bowl. This is an optional ticketed event which will be held inside the stadium and will feature heavy hors d'oeuvres, cocktails and tours of the facility. Check this issue and our website ([www.mowa-mn.com](http://www.mowa-mn.com)) for details on these events.

Also on the agenda is an O&M Training offered by the National Association of Wastewater Technicians, and a pair of EPA "Listening Sessions" that will focus on the role of education and training in meeting workforce demands.

Industry companies will be displaying their in the expansive want to visit as many each company you of winning a cash receive a bingo card

**The next  
MOWA Conference  
will be held in  
January 2020.**

At the end of both days of the Expo, people who complete their daily bingo card can enter them in a daily raffle for a \$500 cash prize! And if you are interested in exhibiting, there is still time to sign-up to exhibit and/or sponsor at this event. Note there is a special expo rate for companies based in Minnesota that only sell their products locally! For details, visit our website to access the Expo Prospectus.

We will also be holding the National Backhoe Roe-D-Hoe® National Championship, which brings together state Roe-D-Hoe champions from around the country and offers them a chance to compete against one another to determine the National Champion. A \$1,000 prize goes to the national Roe-D-Hoe winner, with smaller cash prizes for 2nd and 3rd places.

With so many activities, educational opportunities, and networking possibilities, there should be something for everyone at the 2018 Mega-Conference. As MOWA members, having this national event in our backyard gives you a tremendous opportunity to expand your educational options while also learning and sharing with folks like you from around the country. As you contemplate whether to attend, please keep in mind that attending an onsite conference at the state or national level should be viewed as an investment in you and your company, not an expense. We think you'll find more than enough value with the Mega-Conference to determine it is a worthy investment. A registration form is elsewhere in this newsletter. Please feel free to use that, or visit our website: [www.mowa-mn.com](http://www.mowa-mn.com).

We look forward to seeing you in Bloomington! ■



## 2018 NOWRA Mega-Conference Countdown!

### Conference Headquarters Hotel: Book by September 26th for Discounted Room Rates!

**Doubletree by Hilton Bloomington - Minneapolis South**  
7800 Normandale Boulevard, Bloomington, MN 5543-97800  
952-835-7800

#### Room Rates

**\$119** - single/double; **\$129** - triple; **\$139** - quad  
Plus 14.275% state/local tax

#### Reservations

There are two ways to reserve your hotel room!

**Book online:** [https://doubletree.hilton.com/en/dt/groups/personalized/M/MSPBSDT-WRA-20181016/index.jhtml?WT.mc\\_id=POG](https://doubletree.hilton.com/en/dt/groups/personalized/M/MSPBSDT-WRA-20181016/index.jhtml?WT.mc_id=POG)

**Telephone:** Call 866-271-8967 and tell them you are registering for the 2018 Onsite Wastewater Mega-Conference to obtain the discounted hotel room rate.

The DoubleTree by Hilton Hotel Bloomington - Minneapolis South is located just off I-494 and Hwy 100, and is only ten minutes from Minneapolis - St. Paul International Airport (MSP) and the world-famous Mall of America. With plenty of on-site parking, the hotel provides complimentary shuttle service to the airport

and local venues. Guests can choose from a variety of comfortable guest rooms and suites including pool-side rooms with balconies, whirlpool suites and Executive level accommodations.

As is famously the case with most Doubletree properties, hotel guests will also be greeted with warm chocolate chip cookies upon check-in.

Amenities at the hotel include a swimming pool, modern fitness center, whirlpool, Crescent Kitchen (a farm-to-table concept restaurant), and a bar. ■



## IN 2018, ALL ROADS LEAD TO MINNEAPOLIS!

### REGISTER NOW!

(Go to Page 12 for registration form)

**2018 ONSITE WASTEWATER MEGA-CONFERENCE**  
**OCTOBER 21-24, 2018**  
**Doubletree by Hilton Bloomington – Minneapolis South**  
**Bloomington, MN**

A partnership between NOWRA and MOWA (Minnesota Onsite Wastewater Association)



# CONFERENCE AGENDA



## Sunday, October 21, 2018

Start	Finish	
1:00 PM	5:00 PM	NOWRA Board of Directors Meeting, <i>Edina</i>
12:00 PM	5:30 PM	Registration Open, <i>Grand Ballroom Foyer</i>
1:00 PM	6:00 PM	Exhibitor Move-In, <i>Grand Ballroom</i>
4:15 PM	5:00 PM	Volunteer Coordinator Training, <i>Atrium 2</i>
6:00 PM	7:30 PM	Welcome Reception, <i>Garden Court</i>

## Monday, October 22, 2018

Start	Finish	
7:00 AM	5:00 PM	Registration Open, Morning Refreshments Served, <i>Grand Ballroom Foyer</i>
7:30 AM	11:00 AM	Exhibitor Move-In (cont'd), <i>Grand Ballroom</i>
		Opening General Session, <i>Veranda Ballroom</i>
8:00 AM	8:10 AM	Conference Welcome, <i>Jim Bell, NOWRA; Gene Basset, NAWT; Andy Winkler, MOWA, Mary Clark, SORA</i>
8:10 AM	9:00 AM	Minnesota's Legacy - Water Resources, <i>Minnesota Governor or MPCA Commissioner</i>
9:00 AM	9:50 AM	Financing Decentralized Solutions in Minnesota - Creative and Successful Financial Assistance, <i>Jeff Freeman, Bill Dunn, Aaron Jensen, Dwight Wilcox and Eric VanDyken</i>
9:50 AM	10:10 AM	Break, <i>Grand Ballroom Foyer</i>
10:10 AM	11:00 AM	Update on EPA and the Decentralized Wastewater Program, <i>EPA Staff</i>
11:00 AM	11:50 AM	New Developments in Distributed Infrastructure, <i>Dr. Lynn Broaddus, The Broadview Collaborative</i>
11:50 AM	7:00 PM	Expo Hall Opens - <i>Grand Ballroom</i>
11:50 AM	1:30 PM	Lunch Provided in Expo Hall, NOWRA National Backhoe Roe-D-Hoe® Open, <i>Grand Ballroom</i>
12:00 PM	1:30 PM	State Affiliates Committee Meeting, <i>Atrium 1 (lunch provided)</i>
12:00 PM	3:00 PM	SORA Business Meeting - <i>Atrium 7 (lunch provided)</i>

*No other investment yields as great a return as the investment in education. An educated workforce is the foundation of every community and the future of every economy.*

Brad Henry

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Monday Afternoon, October 22, 2018 -- Concurrent Sessions							
Track Topic	Technical	Nitrogen	Funding and Decentralized	Management	State Leaders	NAWT O&M Training	
Track Number	I	II	III	IV	V	VI	
Room	Veranda 1 & 2	Veranda 3 & 4	Veranda 5 & 6	Veranda 7 & 8	Atrium 1	Bloomington	
Start	Finish						
1:30 PM	2:30 PM	Precast Concrete Decentralized Wastewater Treatment Cluster and Package Systems, Claude Goguen	Review of Total Nitrogen Regulations in Eight States; and Case Studies of Advanced Nitrogen Wastewater Treatment Performance in Minnesota, Louis Sigtermans and Peter Daniels	Local Programs – Matching Funding with Local Needs; Dollars, Culture, and Circumstance, Aaron Jensen, Eric VanDyken, Stephanie Holt, Dwight Wilcox	How Sustainable are OLDER Onsite Wastewater Systems?, Jake Garrett	Panel: Lessons Learned to Make Associations Run Better	O&M I - Professional Systems Technician Training-- Introduction to Systems Management
2:30 PM	3:00 PM	Effect of Distribution on Fecal Coliform in Combined Treatment & Dispersal Systems, Dick Bachelder	An Update on Onsite Sewage Nitrogen Reduction Projects in Florida, Debby Tipton	Small Community Spotlight: Oronoco Wastewater Treatment and Management, Sheila Craig, Peter Miller, and Corey Hower	Journey of a Successful Rule, A Path Forward After 16 Years, Edwin Swanson	Panel: Community Involvement Projects to Build Relationships (Part 1)	
3:00 PM	3:30 PM	<b>Break, Grand Ballroom</b>					
3:30 PM	4:00 PM	A Three-State Study to Measure the Impact of Passive Venting on Increasing Airflow, Kevin Sherman	Unique Process Control Strategy for Optimum Nitrogen Removal in Small Flow Wastewater Treatment Plants, Gary Lucas	Bridging the Gap from Decentralized to Centralized Treatment for a Small Community, Joe Witlox	Ecological Sanitation - Moving Forward through a Review of Land Application of Septage, Ben Howard	Panel: Community Involvement Projects to Build Relationships (Part 2)	O&M I - Professional Systems Technician Training--Developing your files and communication
4:00 PM	5:00 PM	Microbially Contaminated Groundwater: Results and Risk, Anita Anderson	Nutrient Treatment by Three Large On-site Wastewater Systems in the North Carolina, Charles Humphrey	Case Study: The Largest Cluster System in Minnesota - the City of Afton, Peter Miller	How Detailed Time Series and Liquid Level Data can Indicate Problems and Inform Better Solutions, Kelly Galloway	Panel: Partnerships to Help State Associations Succeed; Roundtable Discussion	
5:00 PM	6:30 PM	<b>Technical Practices Committee Meeting, Edina</b>					
5:00 PM	7:00 PM	<b>Exhibitor Appreciation Reception, NOWRA National Backhoe Roe-D-Hoe® Open, Grand Ballroom</b>					
7:30 PM	9:30 PM	<b>Off Site Reception at US Bank Stadium with Tours (home of last years SuperBowl!)</b>					

Tuesday, October 23, 2018							
Start	Finish						
7:00 AM	1:30 PM	<b>Expo Hall Open, Grand Ballroom</b>					
7:00 AM	8:00 PM	<b>Continental Breakfast Provided, NOWRA National Backhoe Roe-D-Hoe® Competition, Grand Ballroom</b>					
8:00 AM	11:30 AM	<b>Registration Open, Grand Ballroom Foyer</b>					
Track Topic	Technical 1	Technical 2	Policy & Regulations	Minnesota Highlights & Panel Discussions	Reuse	NAWT O&M Training	
Track Number	VI		VII	VIII	IX	X	
Room	Veranda 1 & 2	Veranda 3 & 4	Veranda 5 & 6	Veranda 7 & 8	Edina	Bloomington	
Start	Finish						
8:00 AM	8:30 AM	Hydraulics on Subsurface Drip Irrigation during Non-Steady State Conditions, John Buchanan	On-site Wastewater Treatment and Water Recycling at a Music Festival Venue, Ben Kele	Providing Oversight of Local Health Departments at a State Level, Dale Ladouceur	Minnesota Pollution Control Agency Septic System Program Update, Jim Ziegler	Advancing Safe and Sustainable Water Reuse in Minnesota, Anita Anderson	O&M I - Professional Systems Technician Training-- Care of Conventional Systems
8:30 AM	9:00 AM	Laboratory Test of the Effect of Food Waste Disposals in Septic Tanks on Effluent Water Quality and Solids Accumulation, Bo Hu					
9:00 AM	9:30 AM	Real-Time Random Testing: A More Precise Way to Analyze Efficacy of Treatment, Marie-Christine Belanger	Activated Sludge Sewage Treatment Plant Technology and Operation, Brenda Martinez	A Framework for the Evolution of Decentralized Wastewater Management in Michigan, Dave Cotton	Panel Discussion: Troubleshooting Frozen Septic Systems, Eric Larson, and Larry Stephens	Reduce, Reuse, Recycle, Rethink - Using Recycled Water From Onsite Systems, Joelle Wirth	
9:30 AM	10:00 AM						
9:30 AM	10:30 AM	<b>Break, NOWRA National Backhoe Roe-D-Hoe® Competition, Grand Ballroom</b>					

An investment in knowledge pays the best interest.

Benjamin Franklin

MISSION: Promoting professionalism in the onsite wastewater industry

Tuesday, October 23, 2018 (Continued)							
10:30 AM	11:00 AM	Impacts of Water Softening on Chloride in Minnesota Waters, Alycia Overbo	Onsite Wastewater Treatment System Malfunction Analysis, Prevention, and Repair, David Lentz	Building Partnerships to Improve Systems and Regulation Panel Discussion, Christl Tate, Craig Gilbertson, Colin Bishop, and Eric Folks	Panel Discussion: Maintenance Considerations with Frozen Systems, Brian Koski, Bob McKinney and Cindy Tiemann	Onsite Wastewater Treatment for Reuse with Packed-Bed Filter Technology, Jeff Pringle	O&M I - Professional Systems Technician Training-- Care of Pump Systems
11:00 AM	11:30 AM						
11:30 AM	1:00 PM	Lunch in Expo, NOWRA National Backhoe Roe-D-Hoe® Competition FINALS!, Grand Ballroom					
11:30 AM	1:00 PM	NOWRA Education Committee and Online Training Taskforce Meeting, Vista 1 & 2 (22nd Floor)					
1:30 PM	3:30 PM	NOWRA BBP Partners and Lobbying Board of Governors (joint meeting), Vista 1 & 2 (22nd Floor)					
1:40 PM	6:00 PM	Exhibitor Move-Out, Grand Ballroom					

**Tuesday Afternoon, October 23, 2018**

Track Topic	Technical	Community and Cluster Systems	Policy & Regulations	Minnesota Highlights & Panel Discussions	Education	NAWT O&M Training
Track Number	VI	VII	VIII	IV	V	VI
Room	Veranda 1 & 2	Veranda 3 & 4	Veranda 5 & 6	Veranda 7 & 8	Edina	Bloomington
Start	Finish					
1:00 PM	2:00 PM	Engineering Passive, Horizontal Movement of Treated Effluent for Dispersal Beneath Sand-Based Systems, Donald Prince	Sizing and Design of Gravity Grease Interceptors Connected to Decentralized Treatment Systems, Claude Goguen	U.S. EPA's Decentralized Wastewater Program Update, Catherine Allen	Panel Discussion: Point of Sale Inspections, Brian Humpal, Tim Haeg and Claude Goguen	Minnesota's Septic System Professional Certification Program, Nick Haig
2:00 PM	2:30 PM	Performance of a Self-Contained & Recirculating Evapotranspiration Channel, Ben Kele	UN Embraces Decentralized System to Fulfill Emergency Sanitation Need, Jill Lauren Hass	Non-Enforcement Is a Dirty Word, Joseph Soulia	Panel Discussion: Installation Considerations around Lakes and Small Lots, Brian Brogard, Dean Flygare, and Dwayne Jones	Soils Continuing Education: Region-Focused Education, Dan Wheeler and Brandon Montgomery
2:30 PM	3:00 PM					Students Who Have Learned From the (Whole) Real World, Doug Nelson
3:00 PM	3:30 PM	Break, Grand Ballroom Lobby				
3:30 PM	4:00 PM	Basic Electrical Theory and Troubleshooting as It Relates to Floats and Onsite Septic Controls, Jim Lockrem	The Design, Construction and Ongoing Startup of The Largest Decentralized System in Maryland, Mark Mazzochette	Barriers to Using Decentralized Wastewater Community Solutions: 2007 to 2018, Mary Clark	Panel Discussion: Design Considerations around Lakes and Small Lots, Wayne Johnson, Stacey Fesser, Dick Bachelder and Tom Fritts	EPA's On-line Learning Module: Financing Decentralized Wastewater Systems, Gaida Mahgoub
4:00 PM	4:30 PM	The Advantages of Using Effluent Sewer Collection Systems, Larry Stephens	An Iowa Community System and a New Mexico ET System, Dennis Hallahan	Case Study in Effective State and Local Regulation On Septic System Compliance, Matt Summers and Ann Beatty		Changing a Culture Through SepticSmart Outreach, Kristine Rendon
4:30 PM	5:00 PM				Septic System Preparedness, Christl Tate	
5:30 PM	6:30 PM	NOWRA Annual Business Meeting & Reception, Plaza 1				
6:30 PM	8:30 PM	SORA Reception (invitation only), TBD				

**Wednesday, October 24, 2018**

8:00 AM	2:00 PM	'Field Trip 1 - University of Minnesota Keys to Successful Design					
8:00 AM	5:00 PM	Field Trip 2 - Large Onsite Systems/Concrete Tank Manufacturing Tour					
8:00 AM	5:00 PM	Field Trip 3 - Reuse Tour					
8:30 AM	10:00 AM	EPA Listening Session - Growing the Decentralized Wastewater Workforce - Technical Professionals (Contractors, Service Providers, etc.) Atrium 4					
10:30 AM	12:00 PM	EPA Listening Session on Growing the Decentralized Wastewater Workforce, cont'd - Degreed Professionals (Engineers, Soil Scientists, etc.) Atrium 4					

**Conference Concludes**

**The is a bi-monthly publication of the Minnesota Onsite Wastewater Association**

Editor: Carla Tourin E-mail: [MOWAcarla@aol.com](mailto:MOWAcarla@aol.com)

The articles printed in the publication do not necessarily reflect the opinion of this organization. Readers are encouraged to respond to the articles with their own points-of-view. We welcome industry-related comments or articles. Information or inquiries should be sent to any of the following: MN Onsite Wastewater Association, MOWA, 5021 Vernon Ave, So., Suite 241, Edina, MN 55436 Phone: 612.801.5897 Fax: 952.487.4447 Website: [www.mowa-mn.com](http://www.mowa-mn.com)



# REGISTRATION FORM

## 2018 ONSITE WASTEWATER MEGA-CONFERENCE

### OCTOBER 21-24, 2018



**Doubletree by Hilton Minneapolis South, Bloomington, MN**

*Registrations will only be accepted with payment in full. Faxed registrations must include credit card payment.*

**Please print:**

Full Name \_\_\_\_\_

Name for badge \_\_\_\_\_ Title \_\_\_\_\_

Company/Org. \_\_\_\_\_

Street Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Daytime phone \_\_\_\_\_ Email \_\_\_\_\_

Please indicate if you are a member of ( ) NAWT ( ) NOWRA (Note: Includes all members of MOWA, AxOWRA, COWA, CPOW, DOWRA, FOWA, GOWA, IOWPA, IOWWA, KSFA, MOWPA, MOWRA, MSO, NOWWA, O2WA, POWRA-NM, POWRA-PA, TOWA-TN, TOWA-TX, UOWA, VOWRA, WOWRA, WOSSA and YOWA)

<b><u>Select fees</u></b>	<b>Until Sept 26</b>	<b>After Sept 26</b>	<b>Amount</b>
<b>MEMBERS:</b>			
<input type="checkbox"/> NOWRA/MOWA/NAWT Professional Members	\$275	\$375	\$ _____
<input type="checkbox"/> Additional member from same company	\$225	\$325	\$ _____
<input type="checkbox"/> NOWRA/MOWA/NAWT Regulator Members	\$225	\$325	\$ _____
<input type="checkbox"/> Additional member from same agency	\$200	\$300	\$ _____
<input type="checkbox"/> NOWRA/MOWA/NAWT Members One Day <i>Specify date: <input type="checkbox"/>10/22/18 or <input type="checkbox"/>10/23/18</i>	\$175	\$275	\$ _____
<input type="checkbox"/> Additional member from same company/org <i>Specify date: <input type="checkbox"/>10/22/18 or <input type="checkbox"/>10/23/18</i>	\$150	\$200	\$ _____
<b>NON-MEMBERS (includes 1-year of membership)</b>			
<i>Specify which organization you wish to join: <input type="checkbox"/> NAWT <input type="checkbox"/> NOWRA</i>			
<input type="checkbox"/> Non-Members: Professional	\$375	\$475	\$ _____
<input type="checkbox"/> Non-Members: Regulators	\$325	\$425	\$ _____
<input type="checkbox"/> Non-Members: One-Day Registration Choose date: <input type="checkbox"/> 10/22 <input type="checkbox"/> 10/23	\$275	\$325	\$ _____
<input type="checkbox"/> Students	\$175	\$250	\$ _____
<input type="checkbox"/> Spouse/Guest (Name _____)	\$125	\$150	\$ _____
<b>OPTIONAL EVENTS</b>			
<input type="checkbox"/> <b>Social Event, Oct 22</b> <input type="checkbox"/> Add spouse/guest (Name _____)	\$49	\$69	\$ _____
<input type="checkbox"/> <b>Oct. 24 Field Trip 1</b> (Soils & Design))	\$75	\$100	\$ _____
<input type="checkbox"/> <b>Oct. 24 Field Trip 2</b> (Large Systems)	\$75	\$100	\$ _____
<input type="checkbox"/> <input type="checkbox"/> <b>Oct. 24 Field Trip 3</b> (Reuse)	\$50	\$75	\$ _____
	<b>Enter promo code</b>		\$ _____
	<b>Total</b>		\$ _____

**Payment Information** (NOWRA EIN# 593099430)

My check (payable to NOWRA) in the amount of \$ \_\_\_\_\_ is enclosed

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NOWRA, 4601 Fairfax Dr., Suite 1200, Arlington, VA 22203, Fax: 703-997-5609  
 Website: [www.NOWRA.org/2018Mega](http://www.NOWRA.org/2018Mega) Inquiries? Call: 800-966-2942 Email: [executivedirector@nowra.org](mailto:executivedirector@nowra.org)

**Field Trips, Continued from Page 1**

**Noon – 1:00 pm -  
Lunch (provided)**

*PM Field Experience*

**1:00 – 2:00 pm -**  
Soil pit observation and description. Dan Wheeler, Stacey Feser, Brandon Montgomery will lead the group through a standard soil pit observation and description. Special attention will be given to the soil properties important for proper treatment and acceptance of septic tank effluent.



**2:00 – 3:30 pm -** Existing septic system design review and solutions – field inspection

*Photo Source: <https://www.wenck.com/project/city-of-afton-large-subsurface-sewage-treatment-system/>*

All presenters will review and inspect the various system components (septic tanks, lift station, pretreatment and soil treatment area). Discussion on installation, monitoring, maintenance, etc. will occur.

**3:30 -4:00 pm** -Travel back to Conference Hotel

***Field Trip 2: Large/Community Onsite Systems Tours (Cost \$75.00, includes transportation and lunch)***

**8:00 am – 3:10 pm** - This tour will showcase facilities that demonstrate the role of onsite wastewater technologies in serving a larger community and a regional utility wastewater management system.

**8:00 am** – Depart Hotel

**8:45 am – 9:45 am** – Arrive Afton, MN – The City of Afton Large Subsurface Sewage Treatment System (LSTS) provides sanitary service to Afton’s “Old Village” along the St. Croix River in Washington County (shown above right). The LSTS, designed to treat 50,550 gallons per day (gpd) of wastewater, is the largest soil-based subsurface treatment system in Minnesota. As the ultimate treated effluent is dispersed to the native soil, stringent limits are in-place to ensure the protection of the environment and public health prior to groundwater recharge. Specifically, the MN state permit includes a 10 mg/L total nitrogen limit at the end-of-pipe prior to soil dispersal. To achieve this level of treatment, the LSTS includes primary, secondary, and tertiary wastewater treatment processes. The tour will allow participants to view these treatment components in operation and allow for discussion.

**9:45 am – 10:45 am** – Travel to next site

**10:35 am – 12:45 pm** - Wieser Concrete Plant Tour - To showcase a precast concrete manufacturing facility that produces various products for wastewater management and treatment. The plant features a total building area of 101,000 square feet, 12 overhead

cranes (3 ton to 25 ton capacities), 16 boom/crane trucks (11,000 to 40,000 pound capacities), and more.

**Lunch - Provided by Wieser Concrete**

**12:45 – 1:25 pm** – Travel to next site

**1:25 pm – 2:25 pm** - St. Croix Bluffs Regional Park, MN – Washington County operates a seasonal campground in the south part of the county with one of the more complex septic systems in the county. The installation of the system itself was interesting. The biggest hurdle on this site was the sandstone and limestone below the soil. Large jackhammers and excavators were needed to get the tank holes and force mains deep enough to install. A six way automatic distributing valve was utilized to dose 6 separate drain field areas. These drain fields were installed using chambers. This eliminated the need to haul in aggregate and allowed more workers to remain onsite and keep the install moving. The tour will go over considerations during the design phase, the complexity of the installation, and operational issues encountered during the life of this system.

**2:25 pm – 3:10 pm** - Travel back to Conference Hotel

***Field Trip 3: Water Reuse Systems Tour (Cost \$50.00, includes transportation, 1/2 day tour, lunch not provided)***

**8:00 am – 12:00 pm** - This tour will showcase facilities reusing wastewater and stormwater within the Twin Cities metropolitan region

**8:00 am** – Depart Hotel

**8:30 am – 10:00 am** – Shakopee Mdewakanton Sioux Community (SMSC) Stormwater harvesting and wastewater reuse irrigation systems . The SMSC public works/natural resources staff and the design engineer will be present at the two sites (commercial and residential) to discuss operation of their system.

**Field Trips, Continued on Page 9**



## ***MOWA—Members Working For You!***

### ***A New look for MOWA!***

***By Cindy Tiemann, MOWA Board Secretary, Owner/  
Business Office Manager – Fiedler's Your Pumping  
Specialists, Inc.***

Over the past several months MOWA's Membership committee has been working on updating MOWA's Logo. The committee consists of board members Mike Capra, Dean Flygare, Bernie Miller, Pete Otterness, Cindy Tiemann along with long time MOWA member Wayne Johnson.

Together with the assistance of Josh Miller, a talented graphic arts student and the son of board member Bernie Miller, the group has created a new MOWA Logo which will be rolled out in full force at the Mega Conference.

With the new logo you will note the group opted to preserve our previous logo's use of the state outline. The wavy lines within the state outline are representative of the variety of soils within our state as well as the use of soils by our collective professions in the treatment of wastewater. The water droplet between the state and our letters reflects the goal of all of us within the organization to improve and maintain great water quality in our state.

In addition to the new logo, this group has been busy working on ways to increase membership, improve branding and enhance our on line presence. With these goals in mind the committee is currently creating a new flyer which will highlight the benefits of joining MOWA. Over the next year this group will also be creating a new renewal and application form with both of these also being available in an online format to make it even easier to join and renew. Together with the technology committee the group is striving to improve our online presence by utilizing social media as well as our current webpage more effectively. Check out our new

***Field Trips, Continued from Page 8***

**10:00 am – 10:30 am** – Travel to next site

**10:30 am -11:30 am** - University of Minnesota student dorm, Minneapolis Campus reuse of stormwater The 17th Avenue Residence Hall on the University of Minnesota Twin Cities Campus is a 600-bed dormitory with 70 bathrooms. Constructed in 2013, the building sits on a 1.1-acre site that is nearly 100% impervious. In order to manage the stormwater run-off from the roof and walkways, a rainwater harvest system was constructed. The main feature of the system is a 35,000-gallon cistern that holds water before treating it, ultimately delivering it to the building's toilets. For the 2017-2018 academic year, 265,000 gallons of stormwater was used for flushing toilets. A representative of the University will be onsite to explain operation and maintenance of the system. In addition, a representative of the University will discuss a future stormwater reuse project that is in the process of being designed and built at the football stadium.

**11:30 am – 12:00 noon** – Travel back to Conference Hotel ■



bio page on our website, this page showcases our board members so you will know exactly who is representing your profession within the organization. This page can be found on our website under the Board of Directors tab or by clicking on following link [http://mowa-mn.com/?page\\_id=994](http://mowa-mn.com/?page_id=994)

If you would like to purchase any logo apparel or other items with the new logo the Members of the committee will be selling clothing items, mugs and other promo items at the Mega Conference! Be sure to check them out! ■

### ***Legislative Update***

***By MOWA Executive Director Pat Martyn***

MOWA has been extremely active in the public policy arena in 2018. Perhaps the most interesting effort was to put the road restrictions into law, thus avoiding the need to each year petition the Governor's Office.

Thanks to the efforts of many MOWA supporters, but most noticeably Lori Ende and Brian Koski, MOWA was able to get a hearing on a bill that would have solved the problem and permit MOWA trucks to service the public before road restrictions came off. Authors were obtained in both the House and Senate, and the lobby firm of Capitol Connections was retained.

Several individuals testified at the House hearing, and Board member Cindy Tiemann added a particular professionalism due to her background as a registered nurse. She and others noted the emergency aspect of the situation in winter when a system has to be repaired or cleaned out, and cited a petition process in the municipalities that was sometimes delayed and thus the cause of public health concerns.

By the time the effort was done, negotiations were underway with the Minnesota Department of Transportation and the MPCA. A compromise was reached and the bill proceeded. We appreciated the attention and support of both agencies.

The bill passed in the House, and the Conference Committee of the Senate and House included it in the Omnibus Bill. Unfortunately, as is widely known, the Governor vetoed that bill with its hundreds of provisions, including ours, failing to become law.

MOWA wants to thank all the parties involved with passing the bill, and appreciates the authorship of Senator Bruce Anderson from the Buffalo, MN area, and Representative Lucero from the Dayton, MN area. ■



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## 2018 Tony Ruppert Scholarship Winners Announced

### MOWA Board of Directors announces 2018 Ruppert Scholarship Winners

The 2018 MOWA Board of Directors is pleased to announce six winners in the annual Tony Ruppert Scholarship Contest.

Sharing first place honors in the contest are: Taylor Geer of Brooten, MN, with the essay, *Excess Phosphorus is a Problem*; Gabriel Hamren of Minneapolis, MN, with the essay, *Chloride Pollution in Minnesota Lakes and Streams*; and Alec Nilson of Maple Grove, MN, with the essay, *Nitrate Concentration in Minnesota Water Bodies*.

There was also a three-way tie for second place honors with the following winners: Grace Johnson of Pelican Rapids, MN, with the essay *Homeowner Education The way to Reduce Emergencies*; Sydney Parrott of Harrisburg, NC, with the essay, *Black Water*; and Simon Van

Dyken of Prinsburg, MN, with the essay *Stormwater Management*.

To be eligible for the Ruppert Scholarship Contest, applicants must be a MOWA members, or a child, sibling, grandchild, or niece/nephew of a MOWA member. Applicants must also be no more than 26 years old as of June 1, 2018 and high school graduates (as of June 2018) who will be enrolled as a full-time student in post-secondary undergraduate education during the 2018- 2019 school year.

Kudos to all winners for their efforts to further the understanding of the onsite wastewater industry, its issues and the science behind the facts. ■

### 1st Place Tony Ruppert Winner— *Excess Phosphorus is a Problem*

By Taylor Geer of Brooten, Minnesota, 1st Place Winner

According to Minnesota DNR spokesperson Julie Forster (2017), Minnesota is home to over 11,842 lakes and is responsible for about 2.6 million acres of lakes (excluding the Great Lakes). With almost 12,000 lakes in a single state, there are many environmental changes, concerns and responsibilities. Environmental changes are a necessity. Many lakes in Minnesota are becoming contaminated with an excess amount of phosphorus causing harm to much more than the quality of the water. Throughout Minnesota, there are three common sources that cause concern and disturb the water quality of lakes: glacial drift source, glacial outwash source and bedrock source.

Each of these sources are locational but have an impact their local lakes. Living in Minnesota also entails responsibility. Without doing something to see a change, the quality and quantity of water in Minnesota will slowly decline.

Environment is an important part of every state, but especially Minnesota. Many Minnesotan pastimes involve lakes, springs and rivers. Although the pastimes involve water, because of the way many people are treating their lawns, disposing of their fall leaves or animal waste, the enjoyable quality of water is declining. Without change to the habits that are harmful to the environment, unwanted phosphorus will continue to be added to the water causing problems harmful for people, animals and the quality of the water.

Glacial drift source (springs and spring fed lakes) is primarily affected by human action such as mining, land development or other development that disturbs the water's ground flow adding



A toxic algal bloom in summer of 2003 was responsible for large-scale fish kills in Chesapeake Bay. Photo Credit: Adrian Jones | IAN

unwanted nutrients such as phosphorus into the water. The glacial outwash source is most commonly affected by water waste that gets disposed of incorrectly. An example of this would be to deposit excess gravel or sand into a lake, where it will harm the water quality. Another example would be septic tank seepage. This is especially common when lakes are heavily populated with individual septic tanks and drain fields. Lastly, the bedrock source is often affected through generating great amounts of water causing sinkholes and caves. When the sinkholes or caves are created, it causes quick and vast contamination. All three sources affect water quality because of human actions, incorrect disposal of water waste, or natural causes.

Responsibility is an important step in seeing both the environmental changes and concerns completed. Responsibility is individual as

**Ruppert 1st Place Essay - Geer, Continued on Page 13**

**Ruppert 1st Place Essay - Geer, Continued from Page 12**

well as a group effort. Nothing can be changed about the amounts of phosphorous entering and contaminating our water and lakes without people taking responsibly and making a change. Excess phosphorus is a problem because it pollutes water with unwanted plant growth, causes atrophy to the quality of water, and impacts the quality of living species within the water.

One side effect of excess phosphorus in water or lakes is unwanted plant growth. There are many different causes and reasons for invasive plant species in water. The most common cause for too much phosphorus in lakes is leaves and grass. When leaves and grass clippings are not bagged and disposed of correctly, they often end up being blown or swept into a storm sewer and eventually ending up in a lake or stream. Because grass and leaves are a major source of phosphorus in water, they cause plants such as algae, toxic blue-green algal blooms and milfoil to grow in otherwise clean lakes.

Besides the fact that the look of green algae on the top of any body of water is unappealing, algae can also cause problems when it dies. As algae dies and decomposes, it sinks to the bottom of the lake and uses up vital oxygen and sunlight needed for other plants, organisms and animals that also live in the water. Blue-green algal blooms are another form of algae, but only forms its blooms in hot, weather. Blue-green algal blooms are particularly a nuisance because they cause physical harm for people and animals. If ingested the bacteria from the blue-green algal blooms cause illness and skin irritation. Milfoil is a weed that is Minnesota native, but currently thrives in the cold-water lakes and slow-moving streams. Milfoil is an undesirable plant because of its desire to spread. The milfoil grows and spreads by choking out other plants and taking control of the sunlight and nutrition other plants and aquatic animals are able receive. Peterson (2015) wrote how milfoil overtook Long Lake and described milfoil as "Plants as tall as a three-story building that turned the lake into a weed pond, preventing boating, water skiing and swimming."

As unwanted plants are fueled by phosphorus, it is inhibiting the desire and enjoyment of water and lakes. The Minnesota Department of Agriculture suggested people, "Keep leaves and lawn clippings out of the streets and gutters as this will have significant benefits for local lakes or streams." Keeping lakes and water quality clean is a responsibility every person has and should have a crucial part in. The Minnesota Pollution Control Agency (MCPA) said, "Leaves might account for 60% of the excess nutrients in lakes." This percentage is overwhelming and can certainly be lowered if people would take responsibility of the environment.

Because phosphorus is a nutrient to plants, it is often used in fertilizers. When phosphorous is used in fertilizers, agricultural runoff occurs causing the excess phosphorus to be absorbed by the soil and transferred to the surrounding lakes. Davis and Cornwell (2013) mention that excess phosphorus from agricultural fertilization is a problem and suggest farmers, "Fertilize more often with smaller amounts and to take effective action to stop soil erosion" (433). Although agricultural fertilization is part of the problem, MPCA said, "Homeowners use up to 10 times more chemical pesticides per acre on their yards than farmers use on their crops." Because homeowners are more likely to use harmful chemicals on their yards than farmers are on their fields, it is dire

that homeowners are aware of the effects and ingredients of the products they use on their yards. Overall, fertilizer is not wrong; it just needs to be used in moderation and should be without harmful ingredients such as phosphorus.

Excess phosphorus causes many water quality problems. The lower the water quality, the lower the quantity of quality fish, which can result in a decline of recreation on specific lakes, tourism and swimming. The MPCA stated, "In the Mississippi River-Twin Cities watershed 87 of the 180 lakes studied didn't meet water quality standards because of excess nutrients." That means almost 50% of the lakes studied had an overabundance of nutrients such as phosphorus. Another factor of poor water quality is the types of fish the water will maintain. Quality fish and other organisms cannot maintain a healthy life in water that has poor water or too many nutrients.

With excess phosphorus contaminating the quality of water, many living species such as animals and fish are harmed. Arola (2017) wrote, "Certain fish species— like bullheads — can thrive in poor water quality. Many of the more popular game fishes thrive in clearer water." Arola goes on to mention that this situation is, "More opportunistic than ideal." Through these statements, Arola is saying that although the water quality is poor (which is not ideal), it has given us an opportunity to watch how water quality effects aquatic creatures. Because of poor water quality, less-desirable fish thrive and often overpopulate lakes and water.

As phosphorus fuels many varieties of algae which decreased the amount of oxygen in water, phosphorus is a direct issue of maintaining wildlife in lakes. The MPCA stated, "Without enough dissolved oxygen in the water, fish and other organisms suffer and die because they can't 'breathe.' This can occur locally or much farther downstream leading to degraded estuaries, lakes and reservoirs." When there is an overabundance of phosphorus in water, it effects more than the appearance of a body of water, but the quality and quantity of what lives within and around the water.

Overall, there are many problems with excess phosphorus in lakes, streams and ground water. Although there are many different sources from which phosphorus can be drawn from, many are from human activity and carelessness. An example of this would be neglecting the amount of leaves in the street or allowing grass clippings to be blown into storm drains. Another cause of additional phosphorus in lakes is due to urban development. Urban development is becoming a problem because the more land that is developed and paved, the less water that is able to be soaked into the ground inhibiting the aquifers to be recharged.

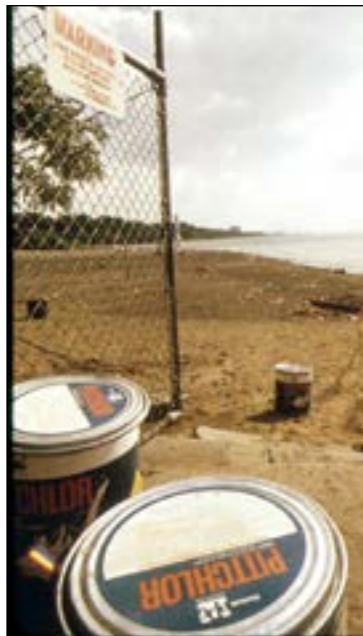
Phosphorus can cause harm to much more than water itself, but other living species as well. Fish, plants and other organisms cannot survive in poor water quality or water that is too polluted with excess amounts of phosphorus. Because of a surplus of phosphorus polluting water causing undesired plant growth, declined water quality, and affected quantity and quality of living species within the water, it has become easy to see how phosphorus is a major problem towards water quality and the future of the environment.

**Ruppert 1st Place Essay - Geer, Continued on Page 18**

## 2018 Tony Ruppert Scholarship Winners Announced

### 1st Place Tony Ruppert Winner— Chloride Pollution in Minnesota Lakes and Streams

By Gabriel Hamren of Minneapolis, MN - 1st Place Winner



National Archives at College Park  
[Public domain], via Wikimedia  
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Minnesota is home to 10.6 million acres of wetlands, 11,842 lakes and 6,564 natural rivers and streams. Minnesota's water resources have low levels of chloride by nature. High concentrations of chloride are harmful to aquatic life. Unfortunately, chloride has been introduced to these water bodies by means of water softeners and salt-based chemicals like deicers and anti-icing products. Chloride, an element that is highly soluble in water, threatens the health of native aquatic life and contaminates groundwater used for drinking. Once chloride has been dissolved in water it can't be extracted by settling, or be debase

by any standard water treatment process. The only way to remove chloride from water is through reverse osmosis and microfiltration, both of which are extremely costly and time-ineffective processes for a problem of such a large scale. Water monitoring data shows that chloride concentrations are increasing in Minnesotan lakes, rivers, streams and groundwater. Road salt runoff is often an issue in large cities with roads, highways and freeways. Chloride in wastewater discharge due to water softening products occurs in almost 90 Minnesotan cities and towns. This chloride travels from residential homes and commercial businesses alike into local wastewater treatment facilities. From there, the facilities fail to remove the chloride and it is drained into freshwater lakes, streams and rivers. As chloride levels in our local water bodies and groundwater continues to increase year by year, it begs the question— what can Minnesotans do to prevent high chloride levels in our communities? Maintaining safe roads during winter months is a necessity, and hard water can be damaging on pipes and dishes. How can we continue to live our lives comfortably and safely while still being conscious of the impact to the world around us? Chloride damage to our natural water resources can be minimized or prevented by making active decisions to preserve the ecosystems around us.

Chloride contaminates our water resources in many different ways, but one of the biggest pollutants is chemical deicers. Deicers are comprised of chemicals that are used to melt snow and ice. We often use deicers on icy roads during the winter. Sodium chloride, found in rock salt, is most often used as a deicing agent for icy

winter months. (Evans et al., 2001.) Deicers containing sodium chloride have been found to cause damage to cars and to cause rust. It has also been found to be lethal to plants and animals in high amounts. Over the past few years, it has become more and more common to find deicers made with magnesium chloride and calcium chloride. These compounds have a lower freezing point and are thought to be less dangerous than sodium chloride. Although deicing agents containing these compounds are thought to be less damaging than sodium chloride and many claim to be 'pet safe', many deicing products containing these chemicals are still harmful to animals. Sidewalk salts containing magnesium or calcium chloride can burn their paw pads, and prolonged exposure to the chemicals can result in chemical burns on the paws of a dog or a cat. If you have your pet on a public road or trail, make sure to clean their paws after a walk.

Most sidewalk salts contain a chloride compound of some kind. Salt, being extremely soluble in water, will quickly dissolve when it comes into contact with snow or ice. This makes it very hard to remove any type of deicer you put down. When temperatures rise and the snow and ice begin to melt, the salt travels with it as it goes into our sewers and storm drains. These storm drains are connected through a series of underground pipes which transport the melted snow, salt and ice to the nearest water body-- which could be your local lake, stream, or river. Water that goes into the storm drain is not treated at a water treatment facility. The melted snow and ice, filled with chloride contaminants, is dumped directly into a local Minnesota water body. This salty, untreated water threatens the lives of freshwater fish and aquatic life. It only takes a tablespoon of salt to pollute five gallons of water. For context, a 50 pound bag of deicer will pollute 10,000 gallons of water. Although Minnesota has a water quality standard in place to protect wildlife from chloride, it is extremely difficult to remove salt from water once it has been introduced.

Despite the growing levels of chloride pollution due to road salt runoff in our communities, there are things citizens can do in order to minimize the effects of chloride on our natural resources. Instead of using deicers on your sidewalk, you can remove your snow quickly with a shovel, broom, or a snowblower. If there is still compacted ice once you have removed all of the snow from your sidewalk, then you can add a small amount of salt. Applying salt to your sidewalk without shovelling increases your risk for thick, compacted ice. Also, keep in mind that most deicers will not work when the temperature drops below 15°F. When it is colder than 15°F or you would like to ditch the salt entirely, you can use sand instead of a salt-based deicing agent to make your sidewalks less slippery. Sand will not melt the snow or ice, but it provides traction on icy surfaces. Although sand is a more eco-friendly alternative to chloride based deicers, it is still a pollutant and will not disappear once it has been put down.

**Ruppert 1st Place Essay - Hamren, Continued on Page 15**

**Ruppert 1st Place Essay - Hamren, Continued from Page 14**

Use your deicer sparingly. You should use less than 4 pounds of salt for every 1,000 square feet of area covered. Any extra sand or ice remaining on your sidewalk after the snow has melted away should be swept up. Once you have swept up the product, you can dispose of it in the garbage or save it in a container for later reapplication. Sidewalk and road salts are a major pollutant of our water bodies. The pollution from these products can easily be prevented by making conscious decisions to minimize the use of deicers.

Chloride also pollutes our water resources through the use of water softeners. Water softening is a water treatment process where calcium, magnesium and other metal ions that are present in hard water are removed. This is achieved by an ion-exchange process where the hard, metal ions like magnesium and calcium are exchanged for softer ions like sodium and potassium. Hard water can result in a buildup of limescale, which can corrode plumbing and piping, result in spotting on dishware, and can cause soap scum in sinks, showers and bathtubs. Many people in both rural and urban communities use water softeners in their homes and businesses.

When water treated with softener is disposed of, the sodium-rich water is drained to a municipal wastewater treatment facility. Wastewater treatment plants are designed to remove contaminants like dirt, sand, food and human waste by organic degradation. Because salt is soluble in water, the sodium ions are quickly dissolved in the water and cannot be organically degraded like other water contaminants. The sodium ions continue to travel through the facility and eventually finds their way into local lakes, rivers and streams.

Although it can be frustrating to deal with hard water in the home, there is no easy way to safely dispose of water that has been contaminated by water softeners. Water with hardness measuring between 50mg/L and 150mg/L is safe to use inside the home and does not need to be softened. You can inquire with your local government to measure the water quality in your community. If your water requires water softening, make an effort to soften your water sparingly and only use softened water for bathing and washing dishes. Choose a water softener that has a regeneration cycle regulated by flow rather than by a timer. (Rhode Island Department of Environmental Management, 2012 .) You can also reduce the amount of water you use in your home.

There are many things individuals can do to prevent chloride pollution in local water resources, but the problem also needs to be discussed on a larger platform with state lawmakers and officials. Over 90 different Minnesota communities are currently struggling with high chloride levels in their wastewater discharge. Water monitoring data shows that concentrations of salt in our local water bodies are continuing to increase year by year. Almost 100 Minnesotan wastewater treatment facilities have chloride levels higher than the current water quality standard. (Minnesota Pollution Control Agency, 2016.)

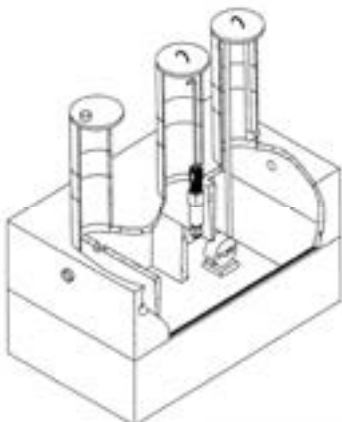
Chloride contamination in water resources isn't a problem specific to Minnesota. Researchers at the Iowa Department of Natural Resources found that chloride toxicity is highly reliant on water hardness

**Ruppert 1st Place Essay - Hamren, Continued on Page 16**

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**Ruppert 1st Place Essay - Hamren, Continued from Page 15**

and sulfate levels. This discovery affirmed that both chloride and sulfate ions in high concentrations are cause for concern in aquatic ecosystems across the Midwest. (Iowa Department of Natural Resources, 2009.) Iowa and Indiana have approved stricter water quality standards regarding chloride concentration based on both water hardness and sulfate concentration. Many cities in California have banned water softeners with the intent of providing water treatment and softening before the water is pumped to residential and commercial properties.

The Minnesota Pollution Control Agency is currently moving forward with a policy presented to them regarding chloride pollution in Minnesota water resources. (Stine, 2017.) The Chloride Working Group, represented by the David Lane, environmental manager of the Rochester Water Reclamation Plant, addressed the MPCA state commissioner and advisory committee on April 18, 2017. After months of researching the challenges of enforcing a chloride water quality standard, the group presented their suggestions to the board. The MPCA is currently implementing some of the suggestions that the group presented to them such as enforcing best management practices in order to minimize chloride levels at municipal wastewater treatment plants. They are also waiving the chloride variance fee for municipalities as long as they use the MPCA-developed streamlined application tool. Waiving this fee means that many municipalities who likely wouldn't be able to afford the cost of the chloride variance fee will still be able to get the help they need from the MPCA without facing economic hardship.

Despite the news of this new implementation, there is still no news of Minnesota adopting a stricter water quality standard similar to the standards in Iowa or Indiana. Without the stricter guidelines approved by lawmakers, it is still largely up to citizens to make a conscious effort to reduce chloride pollution in our water resources. Citizens must adopt safer snow removal techniques and must make informed, responsible decisions while making choices about the water hardness and filtration in their homes. It is imperative that Minnesotans write to their local lawmakers and elected officials and make them aware of the growing problem of chloride pollution.

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Fee: \$360

Exam: Yes

This 15-hour workshop is the foundation for all SSTS certification courses and is best completed prior to the other workshops. It prepares participants for the Basic exam and provides an overview of onsite treatment options and concepts. Enrollment in this workshop includes a copy of the Manual for SSTS Professionals in Minnesota.

#### Topics include:

- Treatment of wastewater
- Site evaluation
- Wastewater characteristics
- Soil treatment systems

10-3 Mankato - Americlnn 11/12-14/18 Deadline: 11/5/18

### Installing Onsite Systems (12 Direct Credits)

Fee: \$265

Exam: Yes

This 12-hour workshop prepares attendees for the Installer exam and provides information about proper installation practices.

PREREQUISITE: Introduction to Onsite Systems

#### Topics include:

- Construction planning
- Tools for installing
- Construction practices
- Pipelayer certification

112-3 Mankato - Americlnn 11/15-16/18 Deadline: 11/8/18

### Installer Continuing Education (12 Direct Credits)

Fee: \$265

Exam: No

This 12-hour workshop will meet the continuing education requirements for any certification but is specifically tailored for Installers. All information will be provided from the perspective of a system installer.

#### Topics Include:

- Construction safety
- Keys to proper installation
- Pumps and dosing
- Rule change implications

69-3 Grand Rapids - Sawmill Inn 12/6-7/18 Deadline: 11/29/18

### General Continuing Education (12 Direct Credits)

Fee: \$265

Exam: No

This 12-hour workshop is designed to meet the continuing education requirement for SSTS professional registration. The topics will be varied to give a wide range of information for SSTS professionals.

#### Topics include:

- Rule change implications
- Pressure distribution
- Working on difficult sites
- MPCA update

60-3 Alexandria - Douglas County 11/6-7/18 Deadline: 10/30/18  
Public Works Building

60-4 Mankato - Americlnn 12/11-12/18 Deadline: 12/4/18

### Soils Continuing Education (6 Soils-Specific Direct Credits)

Fee: \$240 or \$405 with Munsell Color Guide Exam: No

This 6-hour course couples classroom and field training to meet soils-specific MPCA continuing educational requirements for designers and inspectors. Munsell Color Guides are available for \$165 and Sand Cards for \$10.

#### Topics include:

- Regional geology and soils
- Local soil hydrology information
- Soils observations
- System siting and design

55-7 Waseca - Southern Research 10/10/18 Deadline: 10/3/18  
and Outreach Center

**Payment is required to reserve a spot in any course.**

**Confirmation with instructions will be EMAILED along with a receipt.**

**Questions?  
Call: 1-800-322-8642**

**Enroll online: [septic.umn.edu](http://septic.umn.edu)**

**Ruppert 1st Place Essay - Geer, Continued from Page 13**

### References

Arola, B. 2017. Murky Waters: Area lakes marked poor water quality. [http://www.mankatofreepress.com/news/murky-waters-area-lakes-marked-by-poor-water-quality/article\\_39e12384-4235-11e7-98b7-9b7b030780a9.html](http://www.mankatofreepress.com/news/murky-waters-area-lakes-marked-by-poor-water-quality/article_39e12384-4235-11e7-98b7-9b7b030780a9.html) (Aug. 13, 2018)

Davis, M., and Cornwell, D. 2013. *Introduction to Environmental Engineering*. McGraw-Hill, New York, NY.

Jacobsen, J. and Kummer, J. 2017. VERIFY: Does Minnesota or Wisconsin have more lakes? <https://www.kare11.com/article/news/local/verify/verify-does-minnesota-or-wisconsin-have-more-lakes/89-492122898> (Aug. 13, 2018)

Minnesota Department of Agriculture. n.d. *Watersheds, Lawn Care & Water Quality*. <http://www.mda.state.mn.us/protecting/waterprotection/lawnsheds.aspx> (Aug. 13, 2018)

Minnesota Pollution Control Agency. n.d. *Citizen's guide to stormwater*. <https://www.pca.state.mn.us/water/citizens-guide-stormwater> (Aug. 13, 2018)

Peterson, D. 2015. *Clearing lakes of invasive weeds – with benefits for all*. <http://www.startribune.com/clearing-lakes-of-invasive-weeds-becoming-a-class-issue-with-benefits-for-all/318544131/> (Aug. 13, 2018) ■

## Calendar of Events

### MOWA Events

**October 21 – 24, 2018 – NOWRA/MOWA Mega-Conference**  
– DoubleTree by Hilton, Bloomington, MN (visit [www.mowa-mn.com](http://www.mowa-mn.com) or [www.nowra.org](http://www.nowra.org) for details).

### Industry Events

**February 20th – 23rd, 2019 - Water & Wastewater Equipment, Treatment & Transport (WWETT) Show – Indiana Convention Center** (visit <https://www.wettshow.com/> for details).

## WELCOME TO MOWA'S NEWEST MEMBERS

**Daniel Kacans**  
**Veteran Innovations, LLC**  
East Bethel, MN

*If you think education is expensive, try ignorance.*

Jeff Rich



# 2019 MEMBERSHIP APPLICATION

Membership:  Renewal  New Member

- Individual Member  
\$240 (1 person)
- Business Group /Government Unit  
\$340 (up to 5 people; \$100 /person after 5)
- Student  
\$140 (1 person)
- Life-time  
 Honorary

Note: Your MOWA Membership includes one NOWRA membership

**Memberships are based on calendar year - After July 1st, new members pay \$140-individual / \$190-business or gov't groups for remainder of 2019**

**Individual/Group Contact:** This person will be listed as the NOWRA member on the Septic Locator website. They will be listed first in all MOWA publications. Please print clearly.

1<sup>st</sup> Member \_\_\_\_\_ Company Name \_\_\_\_\_  
 Address \_\_\_\_\_ City/State/Zip \_\_\_\_\_  
 Title \_\_\_\_\_ Phone \_\_\_\_\_ Mobile/800# \_\_\_\_\_ Fax \_\_\_\_\_  
 Email \_\_\_\_\_ Website \_\_\_\_\_ County \_\_\_\_\_

**Circle the counties you work in: Needed for Directory and website.**

Statewide..... 88	Clay ..... 14	Hubbard ..... 29	Marshall ..... 44	Pipestone ..... 59	Steele ..... 74
Aitkin..... 1	Clearwater ..... 15	Isanti ..... 30	Martin ..... 45	Polk ..... 60	Stevens ..... 75
Anoka ..... 2	Cook ..... 16	Itasca ..... 31	McLeod ..... 46	Pope ..... 61	Swift ..... 76
Becker ..... 3	Cottonwood ..... 17	Jackson ..... 32	Meeker ..... 47	Ramsey ..... 62	Todd ..... 77
Beltrami ..... 4	Crow Wing ..... 18	Kanabec ..... 33	Mille Lacs ..... 48	Red Lake ..... 63	Traverse ..... 78
Benton ..... 5	Dakota ..... 19	Kandiyohi ..... 34	Morrison ..... 49	Redwood ..... 64	Wabasha ..... 79
Big Stone ..... 6	Dodge ..... 20	Kittson ..... 35	Mower ..... 50	Renville ..... 65	Wadena ..... 80
Blue Earth ..... 7	Douglas ..... 21	Koochiching ..... 36	Murray ..... 51	Rice ..... 66	Waseca ..... 81
Brown ..... 8	Faribault ..... 22	Lac qui Parle Lake ..... 37	Nicollet ..... 52	Rock ..... 67	Washington ..... 82
Carlton ..... 9	Fillmore ..... 23	Lake ..... 38	Nobles ..... 53	Roseau ..... 68	Watonwan ..... 83
Carver ..... 10	Freeborn ..... 24	Lake of the Woods ..... 39	Norman ..... 54	Scott ..... 69	Wilkin ..... 84
Cass ..... 11	Goodhue ..... 25	Le Sueur ..... 40	Olmsted ..... 55	Sherburne ..... 70	Winona ..... 85
Chippewa ..... 12	Grant ..... 26	Lincoln ..... 41	Otter Tail ..... 56	Sibley ..... 71	Wright ..... 86
Chisago ..... 13	Hennepin ..... 27	Lyon ..... 42	Pennington ..... 57	St. Louis ..... 72	Yellow Medicine ..... 87
	Houston ..... 28	Mahnomen ..... 43	Pine ..... 58	Stearns ..... 73	

**Information:** (Check all that apply)

- Installer
- Pumper
- Designer
- Inspector
- Gov't Regulator
- Educator
- Service Provider
- Student
- Soil Scientist
- Professional Engineer
- Manufacturer
- Operator/Maintenance
- Supplier
- Other: \_\_\_\_\_

### Additional Business/Government Members:

2<sup>nd</sup> Member \_\_\_\_\_ Title \_\_\_\_\_ County \_\_\_\_\_  
 Address \_\_\_\_\_ City/State/Zip \_\_\_\_\_  
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3<sup>rd</sup> Member \_\_\_\_\_ Title \_\_\_\_\_ County \_\_\_\_\_  
 Address \_\_\_\_\_ City/State/Zip \_\_\_\_\_  
 Phone \_\_\_\_\_ Mobile/800# \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

(Please list additional business/government group members on separate sheet with complete contact information.)

**Publications:** Would you prefer receiving 'Little Digger' newsletters via ...  Regular Mail  Electronically  
 We currently send one publication per address to business/government groups. Contact the MOWA office if you'd like additional copies.

**Additional NOWRA Memberships:** MOWA membership fees include one NOWRA membership per company/organization. List names of members who want additional NOWRA memberships here: **Cost - \$40 per person.**

2) \_\_\_\_\_ 3) \_\_\_\_\_ 4) \_\_\_\_\_ 5) \_\_\_\_\_

**Payment:**  
 (Please print) MOWA Membership \$ \_\_\_\_\_ + Add'l NOWRA Memberships = **Amount: \$** \_\_\_\_\_  
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 Signature: \_\_\_\_\_ Date \_\_\_\_\_

**MOWA, 5021 Vernon Ave, So., Suite 241, Edina, MN 55436 Phone: 612.801.5897 Fax: 952.487.4447**

NOTE: Dues payable to MOWA are not deductible as a charitable contribution but may be deductible as an ordinary and necessary business expense. MOWA estimates that 10% of your MOWA dues are used for governmental affairs issues and therefore are not deductible.



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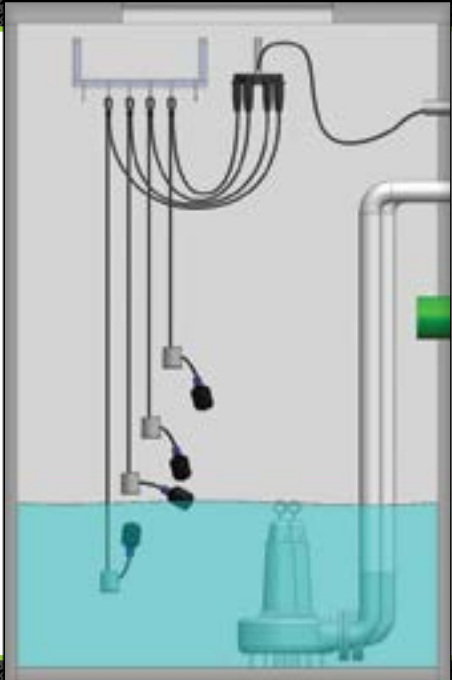
# EZconnex<sup>®</sup> 4-PORT SYSTEM

## Revolutionary Float Switch Connection System

Installation is as easy as **1, 2, 3**...Simply install the manifold, plug in the floats, and wire the manifold cable to the control panel. The color-coded cable makes for a quick, clean installation! The quick release float switch connections allow for easy maintenance and replacement of floats, saving installers time and money...up to 75%! Many float switch options and 3-port manifold available to suit your needs!



- Simple, clean installation
- Up to 4 quick release floats
- Mounts directly in riser
- Great for new and retrofit applications
- Easy maintenance



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