

THE LITTLE DIGGER

MINNESOTA ONSITE WASTEWATER ASSOCIATION

A Bi-Annual Publication

Summer 2022 - Vol. 37, Issue 1

Legislative Work Continues on Weight Load Restriction Remedy



By Lori Ende, MOWA Legislative Chair

As we all know, the Governor provided us an emergency exemption for septic pump trucks from the 2022 seasonal spring weight load restrictions. Let’s talk about where we are at and how we got here.



Our bill for a permanent exemption for spring weight load restriction postings passed the Minnesota Senate, with the help of Senator Bruce Anderson, three years ago. Passing the Senate was a bit easier, as a majority of those senators on the committee live on properties that have septic systems and have had issues in the winter/springtime. They called the bill a “no-brainer.”

In the House of Representatives, however, we have been struggling to get the House of Representatives to pass the legislation. Not by fault of our author House Representative Eric Lucero. We have the support of MnDOT, MPCA, League of MN Counties, and League of MN Cities and Township, who are pulling for us to get this passed.

The organization we cannot overcome is the Teamsters Union, who believe our industry will be taking jobs away from them if this bill passes. The Teamsters Union is strong; they have money to spend fighting their cause, and successful lobbyists to help them stop this from passing.

Weight Restriction Legislation,

Continued on Page 4

In this Little Digger

Weight Load Restriction Legislation.....Pg.	1
MN Frontline Worker Pay	Pg. 1
Message from MOWA President.....Pg.	3
Calendar of Events.....Pg.	4
Summer Soils Seminar is August 12.....Pg.	5
Summer Soils Field Day is August 18.....Pg.	5
Frontline Worker Pay Information.....Pg.	6
Frontline Worker Pay Application Info...Pg.	7
Get To Know Your MOWA Board	Pg. 8
Save The Date - 2023 Convention.....Pg.	9
TRS Essay - Ian Berdan.....Pg.	10
TRS Essay - Taite Grant.....Pg.	12
2022 Tony Ruppert Scholarship Info.....Pg.	13
2021Scholarship Winners.....Pg.	13
National Events & Campaigns	Pg. 14
MOWA 2022 Membership Form.....Pg.	15



Front Line Workers Pay Available; Apply NOW

To thank those Minnesotans who worked on the frontlines during the COVID-19 peacetime emergency, Gov. Tim Walz signed Frontline Worker Payments into law April 29, 2022, enabling those workers to apply for Frontline Worker Pay. Application dates are June 8 through July 22, 2022. **For more information, go to Pages 6-7**

DON'T MISS SUMMER SOILS SEMINAR AUGUST 12, 2022

Engineered For Performance



INFILTRATOR
water technologies

Quick4^{PLUS} CHAMBER SYSTEMS

- Two center structural columns offer increased stability and superior strength
- Advanced contouring connections
- Latching mechanism allows for quick installation
- Four-foot chamber lengths are easy to handle and install
- Supports wheel loads of 16,000 lbs/axle with 12" of cover



EZflow[®] by INFILTRATOR

- Always clean and free of fines
- Quick to install, saving costs on heavy machinery and labor
- Engineered for optimal storage and absorption efficiencies
- Flexible to contour along sloped sites and around trees or landscaping
- Lightweight system is perfect for repairs and tight job sites
- Easily hand-carried into position reducing time and labor



INFILTRATOR[®] tanks

- Strong injection molded polypropylene construction
- Lightweight plastic construction and inboard lifting lugs allow for easy delivery and handling
- Structurally reinforced access ports eliminate distortion during installation and pump-outs
- Reinforced structural ribbing and fiberglass bulkheads offer additional strength
- Can be installed with 6" to 48" of cover



Delta ECOPOD-N Advanced Wastewater Treatment Units are an innovative approach to onsite wastewater disposal where nitrogen reduction is required. The ECOPOD-N technology has been tested under NSF/ANSI 40 and 245 with an average nitrogen reduction of greater than 50% and met and exceeded Class 1 requirements with an average effluent quality of 9 mg/L BOD5 and 8 mg/L TSS.



CALL FOR INFORMATION AND A DISTRIBUTOR NEAR YOU!

Travis Johnson, Area Sales Representative
Infiltrator Water Technologies • (320) 362-0962

From the Board: A Message from the MOWA President

2022-2023 MOWA Board to continue focus on expanding membership; promoting industry professionalism

by **Stacey Feser, MOWA President**

I'd like to start out this issue of our Little Digger with a big thank you to all professionals in our industry for all their hard work over the last year. Many worked tirelessly to meet the demands from the public (during a pandemic might I add) while continuing to act out our mission of promoting professionalism in the wastewater industry. The Minnesota Pollution Control Agency (MPCA) has reported a 25% increase from previous years in the number of permits and septic related work. So, to all you professionals, your efforts are noticed and appreciated!

Secondly, I'd like to recognize our previous president, Alex Pepin, for all the time and commitment he put into our organization in 2021. He did a fantastic job continuing to steer us in the right direction while improving financial stability. We can again look ahead to the future to determine where to best focus our efforts. Sadly, we said goodbye to some long-standing board members that had significant experience and knowledge; Dean Flygare, Pete Otterness, Matt Summers, and Cindy Tiemann. I want to thank you all for your commitment to our industry and all your volunteer hours! New board members were appointed at the last convention in Alexandria, check them out in this issue. We are very excited to see the contributions they will make moving forward.

In addition to our Board of Directors we could not accomplish our many tasks without the guidance of our Interim Executive Director, Tammy Trantham. She is instrumental in our day-to-day operations and providing effective direction. In March, it was exciting for us to be able to switch gears and strategically plan for 2022 and beyond. The Board is going to be focusing on improving our membership base by 10%, of which you can all contribute. If you know of professionals in your area that are not MOWA members, please share with them the benefits that MOWA can offer and the networking and continuing education opportunities that are available! Another idea that came out of our strategic planning meeting was to pilot a program we termed MOWA University. This is a program that will provide hands on experiences for anything wastewater related. Some examples include choosing, installing, and operating pump controls, panels, and filters. At the upcoming MOWA Convention a track will be dedicated to these hands-on opportunities. If you have any topic suggestions or would like to speak, please e-mail them to us.

Lastly, I'd like to highlight the upcoming events we have planned. The MOWA Summer Soils will be taking place in August in Anoka County. Speakers from University of Minnesota OSTP and MPCA will be providing instruction and 6 hours of continuing education will be available. The MOWA Convention will be in Brainerd at Cragun's Resort in February, 2023. Many speakers and topics will be covered with lots of opportunities to get CE credits. Please be sure to read through the rest of this issue to learn about all the networking and educational opportunities! ■

Look for MOWA University at the 2023 Convention!

This hands-on experience track will be dedicated to or anything wastewater-related like choosing, installing and operating pump controls, panels and filters.

If you have topic ideas, contact the MOWA Convention Planning Team - Sara Heger, Stacey Feser, Kurt Christopherson or Tammy Trantham, MOWA Interim Executive Director. Or join the Committee for "hands-on" experience serving the MOWA membership!

This is a bi-annual publication of the Minnesota Onsite Wastewater Association.

Editor: Tammy Trantham, Email: mowaexec@gmail.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 inquires should be sent or made to any of the following: MN Onsite Wastewater Association, MOWA, 11468 Marketplace Dr. N., Ste. 600-PMB392, Champlin, MN 55316 - Phone: 612-361-9629 - www.mowa-mn.com

BOARD OF DIRECTORS

Stacey Feser, President
Feser Environmental
 staceyfeser@gmail.com
 612-382-7491

Kurt Christopherson, President-Elect
DSG – Dakota Supply Group
 Email: Kurt.christopherson@dsgsupply.com
 612-716-9708

Alex Pepin, Past-President
Ten Thirty Environmental Solutions
 alex.pepin@tenthirtyenvironmental.com
 612-248-4281

Ryan Lashinski, Treasurer
Lashinski Services Inc.
 rlashinski@gmail.com
 763-434-3915

Jessica Fosberg, Secretary
Johnson Jet-line
 jessica.fosberg@johnsonjet-line.com
 218-671-1058 or 844.726.4828.us
 507-934-7076

Jake Bell
Bill Wolfe Excavating Inc.
 bwe195@gmail.com

Brian Humpel
Midwest Sewer Services
 brian@midwestsoiltesting.com
 651-492-7550

Travis Johnson
Infiltrator Technologies
 tjohnson@infiltratorwater.com
 320-362-0962

Ben Rynda
Advanced Septic Solution
 advsepsol94@gmail.com
 612-298-6920

Keith Valento
Smilie's Sewer Service
 info@smiliesewer.com

Mary VonEschen
Scott County Environmental Services Dept.
 mvoneschen@co.scott.mn.us



**IT'S SIMPLE
GET MORE DONE.
MAKE MORE MONEY.**

NEXT GENERATION CAT® 349 & 352 EXCAVATORS

**INCREASE EFFICIENCY
UP TO 45%**

When every dollar counts, you need a machine that does more heavy-duty work in less time at a lower cost. Built to save fuel, engineered to reduce maintenance costs, and equipped with technologies that improve efficiency, these rugged, reliable new excavators work productively and profitably.

www.zieglercat.com

ZIEGLER CAT

Weight Restriction Legislation,

Continued from Page 1

We have conferenced over the last two years with the Teamsters Union and have had many meetings with the union leaders, to no avail. This is our only hang up. In an attempt to schedule another meeting with the Teamsters Union this year, we were "ghosted."

In frustration, I went to the Governor's office this January to discuss other alternatives and brought up the possibility of him signing an executive order for a permanent exemption.

The Governor's concern with this idea is that if he were not to win the Governorship again, would that executive order be tossed out. He thought it too risky.

A few weeks later, I received a call from the Governor's office. The Governor's idea was to meet with the Policy Advisory Committee to see if we could reach an agreement on policy. In that meeting, we decided to take MnDOT's recommendation to go back to the Senate Transportation Committee and ask Senator Anderson to submit our bill for inclusion in the Omnibus Bill. MnDOT was confident that the Omnibus Bill, where the excess transportation funding to our state, would pass this year. The Transportation Chair agreed, and our bill is in the process of inclusion into the Omnibus Bill.

I am hopeful, as I always am, that we will be successful this year. If not, we will just keep pushing our agenda for this most needed legislation to pass. In the meantime, the Governor is on our side, and has never not accepted any of our requests for emergency springtime orders for exemptions. For that, I am grateful ■

Calendar of Events

MOWA Events

Friday, August 12, 2022— 8:30 AM – 11:30 AM CST / 2022 Summer Soils Seminar ONLINE Webinar.

To register, go to <https://www.mowa-mn.com/seminars>

Thursday, August 18, 2022— 8:00 AM – 12:00 PM OR 1:00 – 5:00 PM CST / Summer Soils Seminar FIELD DAY in Anoka County.

February 6-7, 2023— 2023 MOWA Conference at Cragun's Resort on Gull Lake. Watch for more details

Industry Events

October 30 - November 2, 2022— Onsite Mega-Conference is being held in Springfield, Missouri.



Summer Soils Class is Aug. 12; Field Day Aug. 18

Register NOW for the on-line MOWA Summer Soils Class and Field Day!

MOWA is hosting a Summer Soils Seminar in Anoka County with the opportunity to gain 6 CE credits!

We will host the Summer Soils online Zoom seminar on August 12 from 8:30 to 11:30 am and a field session on August 18. Attendance at both events is required if you want the CE credits. (online + one field session)

Once registered for the class you will be assigned either a morning field session or afternoon field session. There will be speakers from the University of Minnesota Onsite Sewage Treatment Program and the MPCA. Below is a brief description of the topics to be covered.

Summer Soils Topics

- Identifying surface features,
- Soil observation requirements,
- Describing soils for determining limiting condition,
- Examples of common soils issues seen around the state

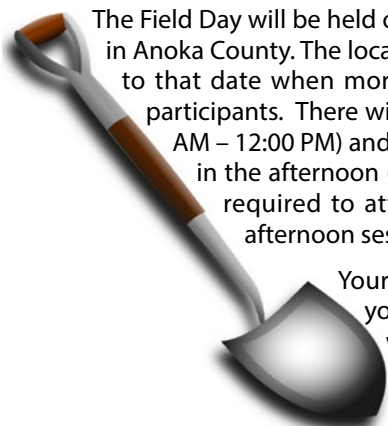
The introductory talk will review geology and soil formation as well as the regional landscape(s) and soil conditions in depth. We discuss proper identification and description of outwash soils including characteristics related to Lamellae, soil structure, soil colors, soil texture including sand sizes, redox features, organic soils, and observable water tables. We also provide tools and resources to help practitioners make determinations.

The second talk is a review-oriented talk focusing on the application of Minnesota Rules 7080 for evaluating the site and soils. It breaks down Minn. R. 7080.1720 in depth to review how the rule addresses these activities; allowing for discussion on the “why” behind the various provisions involving our soils work. Topics include identifying surface features, soil observation requirements, describing soils for determining limiting condition, and includes examples of common soils issues seen around the state.



The final talk describes site evaluation choices. As a designer you need to make several decisions. Exploring this design process and evaluating the options, specifically related to flow values, water quality, and reviewing the soil observations in order to complete the system design will be discussed ■

Summer Soils Field Day Is Scheduled for Aug. 18 in Anoka County



The Field Day will be held on Thursday, August 18, 2022 in Anoka County. The location will be announced prior to that date when more information is emailed to participants. There will be a morning session (8:00 AM – 12:00 PM) and a repeat of the same session in the afternoon (1:00 PM – 5:00 PM). You are required to attend either the morning or afternoon session.

Your session will be assigned to you and an email confirmation will be sent to you from MOWA.

Please take note of the following recommendations:

- We encourage all participants to bring a beverage.
- Please be prepared to stand for long periods of time or bring your own accommodations (i.e. something to sit or lean on).
- Bring rain gear and boots in case of inclement weather, or sun protection and/or bug spray.
- Bring your own Munsell Color Book and a spray bottle for coloring and texturing the soil samples ■



Frontline Worker Pay Information

Frontline Worker Pay recognizes essential workers!



About

To thank those Minnesotans who worked on the frontlines during the COVID-19 peacetime emergency, Gov. Tim Walz signed a law April 29, 2022, enabling those workers to apply for Frontline Worker Pay. Details of the

program, including the application process and timeline, are online at frontlinepay.mn.gov. Visit the website to sign up to receive emailed updates about Frontline Worker Pay.

Who is eligible

There are initially two parts to who is eligible to apply: the work requirements and the job sector.

Work requirements

To be eligible for Frontline Worker Pay, the applicant:

- must have been employed at least 120 hours in Minnesota in one or more frontline sectors between March 15, 2020, and June 30, 2021;
- for the hours worked during this time period the applicant—
 - was not able to telework due to the nature of the individual's work, and
 - worked in close proximity to people outside of the individual's household;
- must meet the income requirements for at least one of the 2020 or 2021 tax years—
 - workers with direct COVID-19 patient care responsibilities must have had an adjusted gross income* less than \$350,000 for married taxpayers filing jointly, or less than \$175,000 for other filers, and
 - for workers in occupations without direct COVID-19 patient care responsibilities, the adjusted gross income* limit is \$185,000 for married taxpayers filing jointly, or \$85,000 for other filers, and
- must not have received an unemployment insurance benefit payment for more than 20 weeks on a cumulative basis for weeks between March 15, 2020, and June 26, 2021.

* More about adjusted gross income: [irs.gov/e-file-providers/definition-of-adjusted-gross-income](https://www.irs.gov/e-file-providers/definition-of-adjusted-gross-income).

Job sectors

1. building services, including maintenance, janitorial and security;
2. child care;
3. courts and corrections;
4. emergency responders;
5. food service, including production, processing, preparation, sale and delivery;
6. ground and air transportation services;
7. health care;
8. long-term care and home care;
9. manufacturing;
10. public health, social service and regulatory service;
11. public transit;
12. retail, including sales, fulfillment, distribution and delivery;
13. schools, including charter schools, state schools and higher education;
14. temporary shelters and hotels; and
15. vocational rehabilitation.

Where to apply

After the application is ready, eligible workers will have 45 days to apply for Frontline Worker Pay at frontlinepay.mn.gov. Visit the webpage for helpful resources, such as answers to frequently asked questions, informational handouts in multiple languages, brief how-to videos and more.

Application assistance

After the application is ready, a call center and help desk will also be available to assist applicants in multiple languages.

Payments

After processing and verification of the applications, as well as a 15-day period for denied applicants to contest those decisions, the final list of eligible applicants will be determined. Each eligible applicant will be provided with an equal payment. All applications will move through the process at the same time and payments will be forwarded for processing together.

Notice: This article is a brief summary of Minnesota law. It is intended as a guide and is not to be considered a substitute for Minnesota Statutes regarding Frontline Worker Pay ■



frontlinepay.mn.gov



Frontline Worker Pay Fact Sheet: Application Basic

Essential workers who stayed on the job throughout the pandemic between March 15, 2020 and June 30, 2021 are eligible for Frontline Worker Pay. Here's some information about applying for this special benefit.

What is the application deadline?

The application will remain open for 45 calendar days. The anticipated application period will be open from Wednesday, June 8, through Friday, July 22, 2022. These dates are subject to change. If an application is denied, applicants have 15 days from notice of the denial to appeal the denial. All denials will be communicated by email correspondence.

All applications will move through the process at the same time and payments will be forwarded for processing together.

What will I need to know when I apply?

The applicant should be prepared to certify that they meet all eligibility requirements. The application will request the following information.

- Name
- Social Security number
- Employer phone
- Address or Individual Tax number
- Phone number
- Identification Number
- Employer email address
- Email address
- Employer name
- Dates of relevant
- Date of birth

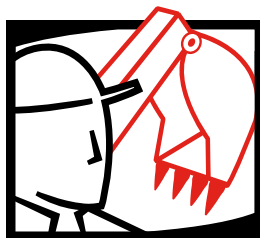
Employer address employment and job title

The application will use knowledge-based authentication (KBA) to prove the applicant's identity. The KBA process will require basic information factors, such as name, address and date of birth, which will be used to compile knowledge questions. If KBA questions cannot be generated, the applicant will be asked to verify their identification by scanning an image of an eligible identifying document: passport, I.D. card, driver's license or residence permit.

The applicant will also be required to choose a form of payment in the event they are deemed eligible for Frontline Worker Pay. The applicant can choose between a direct deposit via an ACH transfer or a prepaid debit card. If the applicant prefers an ACH transfer, they will need to provide their bank routing number and account number.

A list of eligible identifying documents can be found at <https://www.veriff.com/supported-countries>

Documents accepted for residents of the United States of America are passport, Drivers License, ID card and Residency Permit. For more information, visit frontlinepay.mn.gov



**ON-SITE SEWER,
WATER AND WELL**

DSGSupply.com

Faster - Simpler - Easier

100% EMPLOYEE OWNED

Dakota Supply Group is your partner, providing on-site sewer, water, and well solutions for homes, businesses, communities, and farms.

Call us for your On-Site Wastewater needs!

**763-295-3588 or
1-888-295-9355
WELL**



Get To Know Your MOWA Board Members

MOWA welcomes new members to the 2022-2023 Board of Directors. The following Q&A reflects their point-of-view regarding MOWA's importance to the industry and their goals for the Board during the coming year.

Name: Mary VonEschen

Company: Scott County Environmental Services

Role on the Board: LGU

What do you hope to accomplish being on the MOWA Board?

Since I was just elected to the board in February I am new to what the MOWA Board does for its member and this industry. I have been a member of MOWA for the last 15 years and has always thought that being member was always important. MOWA has always promoted professionalism within this industry. I hope to continue this professionalism and hope to promote quality education for our members.

Why is MOWA important to you and your company/organization?

MOWA is important to me and other LGU's because they help individuals/companies within this industry with rule changes and quality education at the winter and summer seminars. They offer a network of people that can help with questions or concerns companies or individuals might have.

Name: Jake Bell

Company: Bill Wolfe Excavating/ Bell Excavating, Inc.

Role on the Board: Designer

What do you hope to accomplish being on the MOWA Board?

To continue to help MOWA be a strong leader for the septic industry in Minnesota. To bring awareness of the Association to other professionals related to our industry and the benefits MOWA does for them behind the scenes.

Why is MOWA important to you and your company/organization?

MOWA has helped our company in many different areas from networking to the different skills learned and education programs offered through the conventions to better you and your business.

Name: Keith Valento

Company: Smilie's Sewer Service

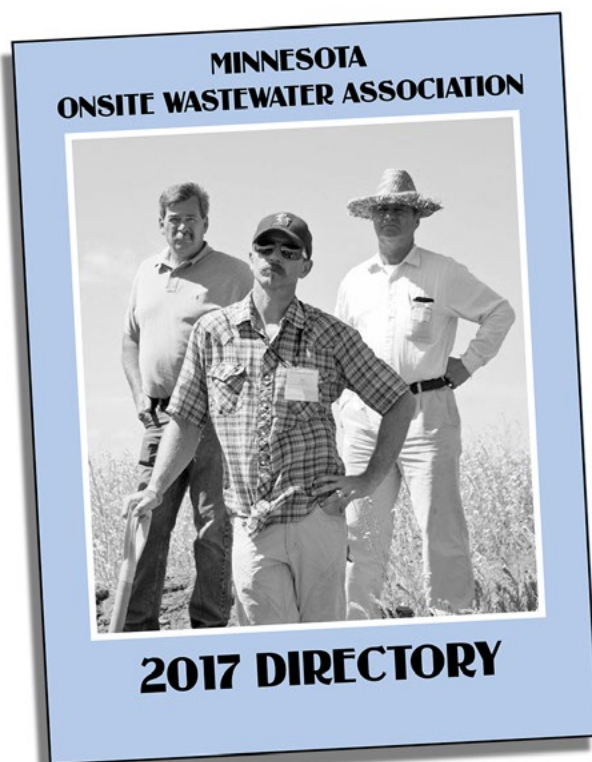
Role on the Board: Maintainer

What do you hope to accomplish being on the MOWA Board?

I believe in bringing more awareness and education for the maintainer's side within MOWA. By building more networking and opportunities for maintainers with MOWA will build our professionalism.

Why is MOWA important to you and your company/organization?

It is important to keep the level of professionalism high for our industry and protect public health for Minnesota citizens ■



Update Member Profiles for MOWA Directory

Members, we ask that you update your profile information on the MOWA website so we have more accurate information for the upcoming Directory.

Please go to the MOWA Website and click on the main header "Membership" and look at the bottom of the page for written or video instructions. Or click on this link:

<https://www.mowa-mn.com/membership>

We appreciate your time to update this information ■



Save The Date— MOWA 2023 Annual Convention

Minnesota Onsite Wastewater Association

2023 ANNUAL CONVENTION

February 6-7, 2023

at Cragun's Resort on Gull Lake, Brainerd, Minnesota



The MOWA Board of Directors cordially invites you to join your fellow professionals for a great two days of education, exhibit hall show and the state Roe-D-Hoe® competition.

The Convention Committee is working on the agenda and activities. It is also recruiting speakers, so submit your topic ideas with speaker suggestions to mowaexec@gmail.com.

Exhibiting Information will come out in late Summer for this event. Don't miss this great opportunity to showcase your company to the 200+ attendees at our show!

A Silent Auction is being planned with a night of fun to fundraise for the Tony Ruppert Youth Scholarship Program.

Registration for the show will open in late fall. Stay tuned for this information on the MOWA website and watch your email.





Tony Ruppert Scholarship: Water Quality Technology

Water Quality Management with Electrical Sensors and Cloud Computing for Agriculture

by Ian Berdan, Maiden Rock, WI - \$1,000 TRS Winner

Ian attends South Dakota State University where he is enrolled in Electrical Engineering. He is the son of Andy Winkler, Wieser Concrete, Maiden Rock, WI

I. INTRODUCTION

In 2015, irrigation in the United States accounted for 42% of the nation's total freshwater usage (Hrozencik 2021). Subsequently, most food production is dependent on the water quality to ensure optimal growth for both crops and livestock. The purpose of this paper is to analyze the issues found while monitoring water pollution and optimize the data through different electrical sensors and real time monitoring with cloud computing.

II. LITERATURE REVIEWED

The largest issue with maintaining water quality is the real-time pollution monitoring. Although there are solutions which utilize the internet, often it comes with a large price tag a long response time. As Saad, Benyamina, and Mamatie state in their paper titled *Water Management in Agriculture: A Survey on Current Challenges and Technological Solutions*, "Industrial and domestic wastewater treatment plants are one of the most effective solutions that can be used to control water pollution devoted to irrigation... however, these plants are not fully accessible and not traded to all farmers categories, and that is due to the infrastructure facility cost... and agriculture traditionalists who draw water directly from water bodies" (2020). Due to this, there is a strong demand for readily available solutions to monitor water quality in rural locations.

A modern proposed solution to introduce wireless water quality sensors for farmers. Cloete, Malekian, and Nair created a device to measure eight separate values which are commonly required for most all-in-one sensors: temperature, pH, electrical conductivity, oxidation reduction potential, free residual



Wireless sensor networks are a key technology for a new generation of environmental monitoring and management systems. CSIRO, CC BY 3.0 <<https://creativecommons.org/licenses/by/3.0/>>, via Wikimedia Commons

chlorine, nitrates, dissolved oxygen, and turbidity (2016). To measure temperature, an analog thermistor is required which is a temperature dependent variable resistor that converts analog signals to digital using a microcontroller. Electrical conductivity measurements are required to make calculations for the total dissolved solids as well as the salt content of the water. To do this, a sensor is designed measure the ions within cells of known volume to record the total resistivity (Cloete, Malekian, and Nair 2016). Also, pH sensors consist of a glass membrane that is doped to hydrogen ions, and the output voltage varies depending on the pH of the solution (Cloete, Malekian, and Nair 2016). More measurements are typically included but these are the most common sensors.

New technologies are entering the field of water quality monitoring which has promising results. For example, the largest up and coming device use microwave arrays for a cost-effective, reliable, re-usable, and autonomous solution. With current methods, the cost of commercial full sensor systems needs to be improved (Manjakkal et al., 2021). Microwaves have been utilized previously for water quality monitoring, but there is a tradeoff between the bandwidth and sensitivity of the spectroscopy. This is due to the dielectric constants potentially being the same for each pollutant at a specific frequency (Zhang et. Al 2019). The proposed microwave array created by Zhang, Amineh, Dong, and Nadler utilized five resonator sensors with varying frequencies which allow a wide bandwidth to be covered (2019). The results were significantly more accurate than traditional methods at determining the specific contaminants in water. Future testing is still required, but the implementation of this technology in rural areas can greatly reduce the cost of water monitoring.

TRS Winning Essay - Berdan, Continued on Page 9

OVERLAND INSURANCE AGENCY

Our office has been the Administrating Agency for over 20 years. We know the Wastewater Industry.

Mike Overland *Industry.*

Nate Overland *Call us for your Bonding or*

Harold Overland *Insurance questions.*

Phone: (888) 346-6250

255 3rd Ave SE

Fax: (218) 346-9261

P.O. Box 150

Website: <http://www.overlandinsurance.com>

Perham, MN 56573

TRS Winning Essay - Berdan, Continued from Page 8

With the implementation of these monitoring technologies, farmers in rural areas still suffer since it requires extra time to physically go to their water source to ensure water quality. Especially compared to taking a water sample and sending it to a lab to be tested. Therefore, it is highly desired to make water quality monitoring wirelessly connect via a satellite and smartphone to send daily readings. Many researchers propose the integration of cloud technologies such as Cyber-Physical Systems, Wireless Sensor Networks, or Internet of Things to connect these devices.

Integrating these devices with cloud computing has potential to make them significantly cheaper. Specifically, the water quality monitoring requires “significant computing resources” which would increase the cost for standalone devices by requiring more advanced onboard microcontrollers (Manjakkal et al., 2021). Instead, by sending the raw data collected to a cloud database would require just the sensors and a low-cost microcontroller. Furthermore, the power usage would decrease so farmers would need to change the batteries out less often.

III. CONCLUSION

Access to clean water sources in rural locations has proved to be a significant issue for many farmers. Although water treatment plants exist, America does not have the infrastructure to deliver this water to crops and livestock. Due to this, valuable time and resources are spent manually testing water sources to ensure

the quality. So far, the only solutions are to either take excess time for testing, or to implement a costly sensor device which still requires weekly or daily visits.

Future water monitoring solutions are likely to involve microwave arrays to reduce the overall cost of these devices while still offering accuracy. The cost can still be reduced more by removing the on-board microcontrollers and instead using cloud computing to analyze the recorded data. This can then simply integrate to the user’s cell phones. Overall, this solution will allow for real time water quality monitoring for farmers which will only require changing out a battery a few times each year. Also, with the real time monitoring, users can quickly assess and fix any contamination found in their water sources ■

IV. LITERATURE CITED

Cloete, N.A, Malekian, R., and Nair, L. 2016. *Design of Smart Sensors for Real-Time Water Quality Monitoring*. IEEE Access. 4:3975-3990

Manjakkal, L., Mitra, S., Petillot, Y.R, Shutler, J. Scott, E.M, Willander, M., and Dahiya, R. 2021. *Connected Sensors, Innovative Sensor Deployment, and Intelligent Data Analysis for Online Water Quality Monitoring*. IEEE Access. 8:13805-13824

Saad, A., Hassan Benyamina, A.E, and Gamatie, A. 2020. *Water Management in Agriculture: A Survey on Current Challenges and Technological Solutions*. IEEE Access. 8:38082-38097

U.S. Department of Agriculture. 2021. *Irrigation & Water Use. Economic Research Service*. <https://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use/>.

Zhang, K., Amineh, R.K, Dong, Z., and Nadler, D. 2019. *Microwave Sensing of Water Quality*. IEEE Access. 7:69481-69493

YOUR PREMIER TANK MANUFACTURER

WE ARE IMPERIAL.
 At IMPERIAL INDUSTRIES, we have been going the extra mile designing and manufacturing specialized commercial sanitation tanks for more than 39 years - constantly evolving to meet the changing needs of your industry. It is our mission to provide you, our valued customers, with dependability for the road ahead.

- Quality
- Durability
- Customer Support
- Truck Dealer Partners

Better efficiency means bigger profits...let us help you get the results you want!

OFFERING A WIDE RANGE OF SEPTIC & PORTABLE PUMPING EQUIPMENT:

- Septic Trucks
- Portable Restroom Service Units
- Grease Units
- Vacuum Trailers
- Hydraulic Hoist Tanks
- 407/412 DOT Tanks
- Parts

Tanks available in your choice of metal - steel, aluminum or stainless steel.
 We've built over 150,000 tanks and counting.

Custom options available!

II IMPERIAL INDUSTRIES INC

1-800-558-2945 | SEPTICTRUCKCENTER.COM | IMPERIALIND.COM

Imperial Industries, proudly family-owned and operated in central Wisconsin for more than 39 years, is the trusted choice for specialized septic solutions and expert service.



Tony Ruppert Scholarship: Arsenic Contamination

Arsenic

by Taite Grant, Mankato, MN - \$1,000 TRS Winner

Ms. Grant is enrolled in Clinical Exercise Science at Winona State University. She is the daughter of Timothy Grant, Blue Earth County, Mankato, MN

The majority of us will drink well water every day without so much as a second thought about it. However, most of us also have no idea what dangers may be hiding in our water. Arsenic. We've all heard of it, but did you know it could be poisoning you in your own drinking water? According to the World Health Organization (WHO, 2018) "Arsenic contamination of groundwater is widespread and there are a number of regions where arsenic contamination of drinking-water is significant. It is now recognized that at least 140 million people in 50 countries have been drinking water containing arsenic at levels above the WHO provisional guideline value of 10 µg/L (4)." Globally, arsenic is the most significant chemical contaminant found in drinking water, and it can have some pretty serious effects on our health.

Arsenic is highly toxic in its inorganic form and is widely documented for its use as a poison, so you may be shocked and even alarmed hearing that it could be in your water, but let's dig into how it gets there. Arsenic is a natural element that occurs in rocks and soils, and it contaminates water that comes in contact with these rocks and soils. While contaminated water is the biggest threat, people are also exposed to contaminated water in food preparation, irrigation of food crops, herbicides, industrial processes, arsenic-treated wood, and even from smoking tobacco. Tobacco plants can take up arsenic that is naturally present in the soil.

Some of the immediate symptoms of acute arsenic poisoning include abdominal pain, vomiting, and diarrhea. This can be followed by numbness and tingling of extremities, muscle cramping, and in some extreme cases, death. It is a confirmed carcinogen, which is a substance capable of causing cancer in living tissue. This can be seen mainly in the long-term effects. The first symptoms of long-term exposure are usually observed in the skin, including changes in pigmentation, skin lesions, and hard patches on the palms and soles of the feet, otherwise known as hyperkeratosis. This occurs after a minimum exposure of approximately five years and may be a precursor to skin cancer. Additionally, long-term exposure may also cause cancers of the bladder, liver, and lungs. Other health effects that may be associated include developmental effects, diabetes, pulmonary disease, and cardiovascular disease. In China, it has been linked to "Blackfoot disease", which is a severe blood vessel disease leading to gangrene.

What are some actions that have been taken, and more actions that we can take to reduce arsenic poisoning in water? In 2001, the United States Environmental Protection Agency (EPA) adopted a new standard for arsenic in drinking water of 10 parts per billion (ppb), which replaced the old standard of 50 ppb. An EPA Administrator, Christine Todd Whitman, stated that "the 10 ppb protects public health based on the best available science

and ensures that the cost of the standard is achievable." (EPA, 2021) If you have a private well the Minnesota Department of Health (MDH) recommends that each well be tested for arsenic at least once. If a new well



has been drilled, you should re-test your well for arsenic again six months or more after the well was drilled. If you are on a public water system, you can find the level of arsenic in your community water system by reading the water quality report or Consumer Confidence Report (CCR). If you want to take further steps to reduce your exposure to arsenic in drinking water, you can also choose to use a home water treatment system such as reverse osmosis, ultra-filtration, distillation, or ion exchange. Apart from water, you can reduce your contact with arsenic by making sure you don't burn arsenic-treated wood, make sure children wash their hands after playing on structures with arsenic-treated wood, wash and peel vegetables grown in soil, and check pesticides and soil supplements to see if they contain arsenic. If you want to get rid of an arsenic-containing pesticide, you can safely dispose of it at household hazardous waste collection sites, which you can easily find online.

It is clear that arsenic is much more common and dangerous than we previously thought. We now know where it comes from, whether that be industrial processes or naturally occurring, as well as how big of a problem that contamination can be, and how serious it should be taken. Although it is dangerous and arsenic can seriously damage our health, there are ways we can prevent and lower exposure as well. I don't think we should fear it, though I think everyone should be more educated on arsenic contamination and its effects. We should all be taking the appropriate actions that we can to protect our family, our health, and the health of others. So, remember this the next time you grab that glass of water from your tap ■

Works Cited

"Arsenic - Water Contaminant." Wellowner.Org, 23 Oct. 2020, <https://wellowner.org/resources/water-quality/contaminants/arsenic/>

"Arsenic in Drinking Water." Minnesota Department of Health, 22 Oct. 2021, www.health.state.mn.us/communities/environment/water/contaminants/arsenic.html#MDHEfforts.

Centers for Disease Control and Prevention. "Arsenic and Drinking Water from Private Wells | Wells | Private Water Systems | Drinking Water | Healthy Water | CDC." CDC, 1 July 2015, www.cdc.gov/healthywater/drinking/private/wells/disease/arsenic.html.

The United States Environmental Protection Agency. "Drinking Water Arsenic Rule History." US EPA, 16 Nov. 2021, www.epa.gov/dwreginfo/drinking-water-arsenic-rule-history.

WHO. "Arsenic." World Health Organization, 15 Feb. 2018, www.who.int/news-room/fact-sheets/detail/arsenic.

2022 Tony Ruppert Scholarship Competition Opens

2021 Tony Ruppert Scholarship Winners Announced

The Tony Ruppert Scholarship Fund awarded a total of \$4,000 to six applicants in last year's competition. Recipients of the awards are as follows:

Ian Berdan

Recipient of \$1000.00 Scholarship

Son of Andy Winkler, Wieser Concrete

Attending South Dakota State University for Electrical Engineering

Nicholas Eicher

Recipient of \$500.00 Scholarship

Son of Jim Eicher, Duane's Septic Service LLC

Attending Century College – White Bear Lake for Paramedic Fire Science

Taite Grant

Recipient of \$1000.00 Scholarship

Daughter of Timothy Grant, Blue Earth County

Attending Winona State University for Clinical Exercise Science

Leevi Nieminen

Recipient of \$500 Scholarship

Grandson of Greg Halling, Halling Engineering

Attending Aalto University for Mechanical Engineering

Cassandra Tiemann

Recipient of \$500 Scholarship

Daughter of Cindy Tiemann, Fiedler Your Pumping Specialists, Inc.

Attending Bemidji State University for Social Work

Lucas Winkler

Recipient of \$500 Scholarship

Son of Andy Winkler, Wieser Concrete

Attending Chippewa Valley Technical College for Business Management ■

2022 Tony Ruppert Scholarship Application Due By September 15th

The Minnesota Onsite Wastewater Association (MOWA) is pleased to announce that applications are now being accepted for the Tony Ruppert Scholarship Fund. Up to \$5,000 in scholarships are available to high school graduates (as of June 2022) who will be enrolled as a full-time student in post-secondary undergraduate education during the 2022-2023 school year.

Applicants must be no more than 26 years old as of June 1, 2022. They must also be affiliated with MOWA in one of the following ways: MOWA Member (Individual or Company); or MOWA Member Employee (Individual or Company); or MOWA Member (Individual or Company) Employee's Child, Sibling, Grandchild, Niece/Nephew.

Students may only win this scholarship once. Students must complete an application, write an essay, and provide certification of the relationship to a MOWA member or member's employee.

You may find the application and essay template on the MOWA website: <https://www.mowa-mn.com/tony-ruppert-youth-scholarship>

Applications are due by September 15, 2022 ■

EXPERIENCE THAT MATTERS. QUALITY THAT LASTS.



- Septic, Grease Interceptors, Aeration, Holding Tanks
- Available in sizes from 750 to 40,000 gallons
- Extra Heavy Duty Tanks - HS20 Loading
- Bituminous Coating, Fast, Efficient Setting
- Tanks for Bio-Microbics and Nibblers, Sand Filters
- Custom Sizes Available to Fit Your Needs

Precast Systems


Concrete Products

Serving the area for over 40 years!

116 E. Hwy. 12 • Darwin, MN 55324
Toll Free 888-693-8440
 320-693-8440 • Fax: 320-693-9593
www.darwinconcrete.com

Septic Tanks
Holding Tanks
Traffic Load Rated
Grease Interceptors

Septic tanks are designed to exceed industry standards.
 Guaranteed water tight.
 Vacuum testing available.
 Prompt Delivery.



Maiden Rock, WI (800) 325 - 8456
 Rosemount, MN (800) 325 - 8456
 Jordan, MN (952) 445 - 4809

www.wieserconcrete.com **INNOVATION, QUALITY AND SERVICE SINCE 1965**

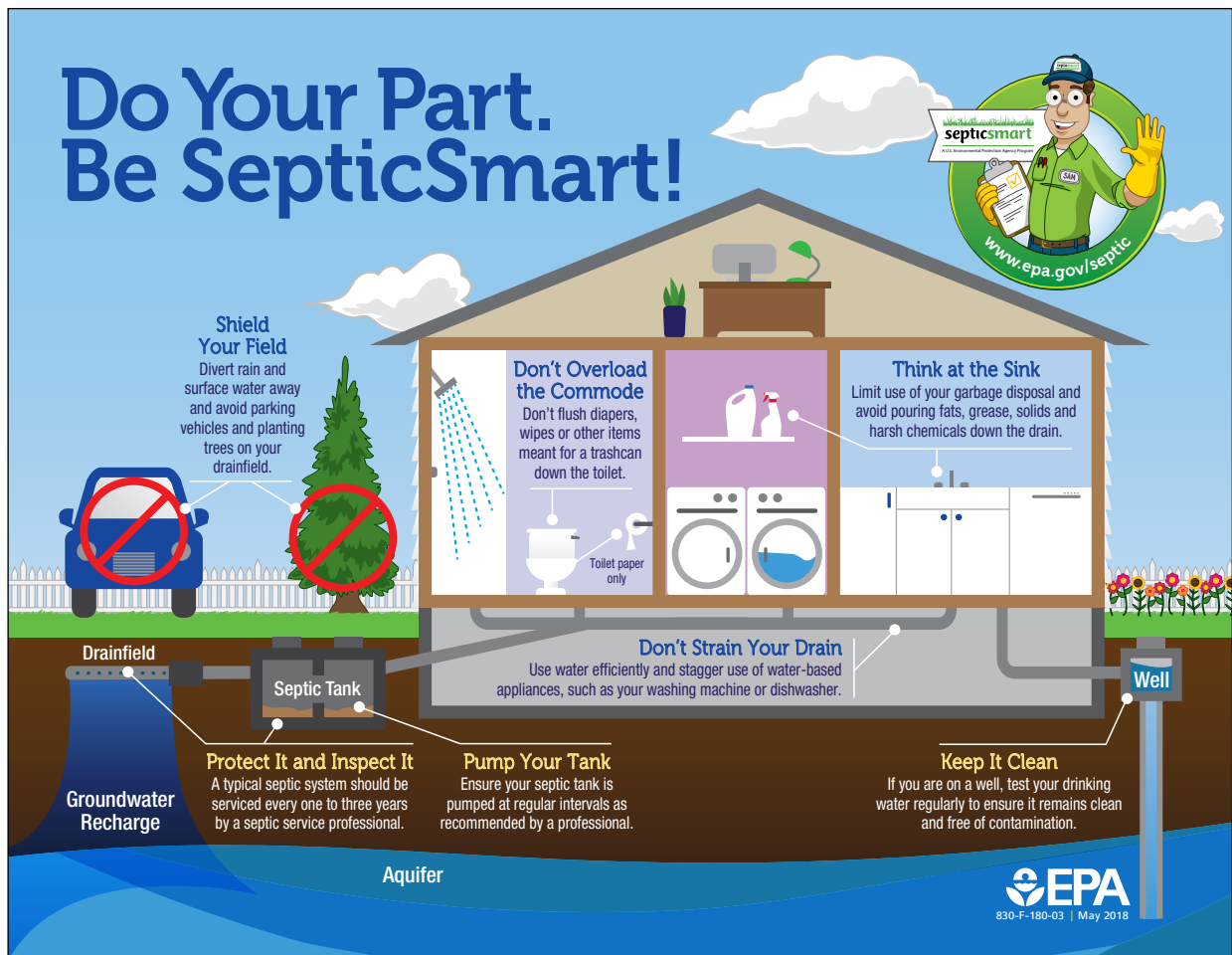
National Industry Events and Public Education Campaigns


Septic Smart Week Is September 19-23, 2022!

Each year, the Environmental Protection Agency (EPA) holds SepticSmart Week with outreach activities to encourage homeowners and communities to care for and maintain their septic systems.

This year Septic Smart Week is September 19-23, 2022.

During SepticSmart Week, EPA seeks to inform homeowners on proper septic system care and maintenance, assist local agencies in promoting homeowner education and awareness, and educate local decision makers about infrastructure options to improve and sustain their communities. For information and resources, go to <https://www.epa.gov/septic/septicsmart-week> ■





Onsite Wastewater

2022 MEGA-CONFERENCE

Promoting Health & Protecting Our Resources

The Onsite Wastewater Mega-Conference is a national, collaborative effort between the National Onsite Wastewater Recycling Association (NOWRA), the National Association of Wastewater Technicians (NAWT), the State Onsite Regulators Association (SORA), and the Missouri Smallflows Organization (MSO). The Mega-Conference is the largest event of its kind and offers onsite/ decentralized professionals the highest quality education and training available.

Sunday, October 30 – Wednesday, November 2, 2022

University Plaza Hotel and Convention Center, Springfield, Missouri

For more information and registration, go to <https://www.nowra.org/conference/mega-conference/>



2022 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 2022

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.

1st 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	Clay14	Hubbard29	Marshall44	Pipestone59	Steele74
Aitkin.....1	Clearwater15	Isanti30	Martin45	Polk60	Stevens75
Anoka2	Cook16	Itasca31	McLeod46	Pope61	Swift76
Becker3	Cottonwood17	Jackson32	Meeker47	Ramsey62	Todd77
Beltrami4	Crow Wing18	Kanabec33	Mille Lacs48	Red Lake63	Traverse78
Benton5	Dakota19	Kandiyohi34	Morrison49	Redwood64	Wabasha79
Big Stone6	Dodge20	Kittson35	Mower50	Renville65	Wadena80
Blue Earth7	Douglas21	Koochiching36	Murray51	Rice66	Waseca81
Brown8	Faribault22	Lac qui Parle Lake37	Nicollet52	Rock67	Washington.....82
Carlton9	Fillmore23	Lake38	Nobles53	Roseau68	Watonwan83
Carver10	Freeborn24	Lake of the Woods39	Norman54	Scott69	Wilkin84
Cass11	Goodhue25	Le Sueur40	Olmsted55	Sherburne70	Winona85
Chippewa12	Grant26	Lincoln41	Otter Tail56	Sibley71	Wright86
Chisago13	Hennepin27	Lyon42	Pennington57	St. Louis72	Yellow Medicine87
	Houston28	Mahnomen43	Pine58	Stearns73	

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:

2nd Member _____ Title _____ County _____
 Address _____ City/State/Zip _____
 Phone _____ Mobile/800# _____ Fax _____ Email _____

3rd 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: \$** _____
 Check enclosed (Payable to MOWA) VISA MasterCard
 Card Number: _____ CVV: _____ Expiration Date: _____ Cardholder Name: _____
 Signature: _____ Date _____

MOWA, 11468 Marketplace Dr. N, Ste 600-PMB392, Champlin, MN 55316 Phone: 612.361.9629

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.



Presorted
Standard
U.S. Postage
PAID
Rochester, MN
Permit No. 289

RETURN SERVICE REQUESTED

MOWA

11468 Marketplace Dr. N., Ste. 600-392
Champlin, MN 55316
Phone: 612-361-9629

www.mowa-mn.com

EZconnex[®] 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!

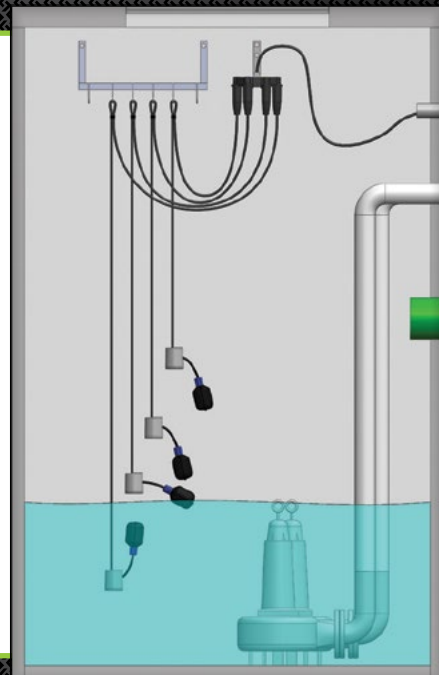


- Simple, clean installation
- Up to 4 quick release floats
- Mounts directly in riser
- Great for new and retrofit applications
- Easy maintenance

 **SJE RHOMBUS**[™]



US Patent No.
9,559,455 and 9,583,867
Foreign Patents Pending



www.sjerrhombus.com

