THE
LITTLE DIGGER
MINNESOTA ONSITE WASTEWATER ASSOCIATION

A Bi-Monthly Publication January 2019 - Vol. 34, Issue 1

MEMBER SPOTLIGHT—
The Bruender Family Has Been Flexing Minnesota Muscle for More Than 50 Years

By David Steinkraus, Onsite Installer - November 2018

Three generations of excavation pros at J.R. Bruender Construction have been pushing dirt and installing innovative septic systems for satisfied customers

Minnesota is known as the Land of 10,000 Lakes, and a fair number of those are scattered across the countryside near Eagle Lake, Minnesota, where J.R. Bruender Construction is located. The high water table around the lakes adds its own challenge to the company's installation business.

J.R. Bruender Construction overcomes that challenge as it has overcome others. About half a century after it was started by John R. Bruender, the company is still going strong. Bruender is "retired," but still helps with projects. His son Steven Bruender runs the company, and Steven Bruender is planning for the transition to his 24-year-old son Joshua.

There are nine employees, and although the word "construction" is in the company name and company excavators dig basements, J.R. Bruender Construction has always offered a full range of wastewater services.

CREATIVE SOLUTIONS

The most challenging system the company installed was a community cluster system, and it was a project the Bruenders

Minnesota Muscle, *Continued on Page 6*

Innovative Solutions for Septic Design in Difficult Soils

Minnesota designer gets creative when faced with rocky soil and problematic floodplains

By Scottie Dayton, December 8, 2016 - Online Exclusives, Onsite Installer

The Minnesota Pollution Control Agency adopted new septic rules in 2008, and then further refined them in 2011. One of the state's rules requires counties to verify soils before issuing permits, and regulators often pass the responsibility on to system designers.

The rules also focus on the percentage of rock fragments in sandy soil. Rock fragments include gravel, stones and cobble larger than 2 mm.

"The greater the percentage of rock in a foot of soil, the less treatment credit it has," says Tim Haeg, advanced designer and owner of Watab in St. Joseph, Minnesota. "Soils with greater than 50 percent rock fragments larger than 2 mm have no treatment credit." Furthermore, dispersal media cannot contact soils with greater than 35 percent rock fragments.

Innovative Solutions, *Continued on Page 9*

In this Little Digger

REGISTER NOW FOR WINTER SOILS SSTS CLASS ON FEBRUARY 5TH **(Go to Pages 4-5)**

From MOWA's Executive Director

By Pat Martyn, MOWA Executive Director

Happy New Year!

As we move into the new year, we move on to a new roster of MOWA Events: First up is our 2019 Annual Meeting, scheduled for February 7, 2019 at the DoubleTree by Hilton in Bloomington. (Note that this is the site where the October Mega-Convention took place.) We hope you can join us there for our Open Forum and to elect 2019 Board members.

This is the time that your Association explains the ins and outs of what happened during the year and if you want to play a more involved role in the Board decision-making process, let us know. If you're interested in running for a spot on the Board of Directors, we are always looking for a few good people to fill the post of departing board members.

There is no charge to attend the Annual Meeting, but we do ask that you RSVP to our office so that we can be sure to have enough seating and refreshments. See the calendar below for details.

Our Summer Seminar Committee is also hard at work planning the 2019 Summer Seminar. Stay tuned for the Save the Date and other details to be announced soon.

In addition to MOWA's Summer Seminar, we are pleased to announce a 2019 Winter Soils SSTS CEU Class hosted by Steinbrecher Companies in Zimmerman. This 8-hour, 6 credit course is scheduled for February 5, 2019 (alternate date: February 7, 2019). See pages 4 and 5 for details and registration.

We are also always looking for people who are interested in serving on our committees. Being a part of a committee is an excellent opportunity to network with your industry peers and to be a part of MOWA's growth and mission of Promoting Professionalism in the Onsite Wastewater Industry.

Enjoy this issue. We look forward to seeing you in Bloomington in February! ■

Calendar of Events

MOWA Events

Thursday, February 7, 2019 – ***MOWA Annual Meeting***– DoubleTree by Hilton, Bloomington, MN (visit www.mowa-mn.com or www.nowra.org for details).

Industry Events

February 5th, 2019 – 2019 Winter Soils SSTS CEU Class – Hosted by Steinbrecher Companies, Inc. (visit SteinbrecherCompanies.com for details)

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

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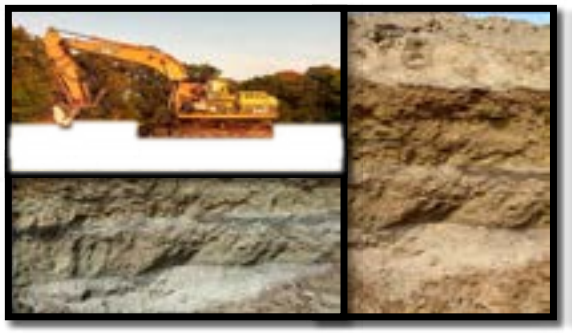
MOWA
2018 BOARD OF DIRECTORS

2019 Winter Soils SSTS CEU Class

Hosted by Steinbrecher COMPANIES, INC.



Materials presented by Terry Bovee and Luke Lunde

Date:	**February 5th, 2019**
Alternate Date:	February 7th, 2019
Time:	7:45am Check-In **8:00am Class Begins**
Location:	**13792 247th Ave NW** **Zimmerman, MN**
FEE:	**$350.00 (Includes Lunch)**

This 8 hour, 6 credit course will include indoor presentations and outdoor field review with classification of two soil pits. This unique opportunity will meet the requirements of the MPCA Soil Education with Field Component.

Call today to register and reserve your spot.

763-274-0925

Registration form can be found online at www.SteinbrecherCompanies.com

*Credits are anticipated and have been applied for. MPCA has specific weather conditions that must be met. Class will be held weather conditions permitting on date above. Alternate date is listed if needed.

2019 Winter Soils SSTS CEU Class Registration Form

Hosted by Steinbrecher Companies

Registration is due by January 30th, 2019

- Credits are anticipated and have been applied for.

- MPCA has specific weather conditions that must be met. Class will be held weather conditions permitting on date below. Please mark your calendar for alternate date as well, incase class date needs to me moved. Attendance is required to receive Certificate of Attendance

DATE:	**February 5th, 2019**	**CHECK-IN:**	**7:45am**
Alternate Date:	**February 7th, 2019**	**CLASS BEGINS:**	**8:00am**
LOCATION:	**13792 247th Ave NW Zimmerman, MN**	**FEE:**	**$350.00**

***Name** _____ ***Certification #** _____

Please Print *First* *Middle Initial* *Last*

***Address** _____

***Phone** _____

***Email** _____

***Employer** _____ Employer License # _____

***Address** _____

***Phone** _____

FAX _____

Alt. E-mail: _____

*** Indicates Required fields**

- Payment is required to reserve your spot in class.
- Please complete separate registration form for each participant.
- Confirmation with instructions will be EMAILED along with a receipt.
- All cancellations must be received in writing by Steinbrecher Companies Inc staff one business day prior to the class. Refunds are only issued for cancellations received in writing before the class begins. All refunds will be made in the same manner as payment, minus a $30 cancellation fee. You will be charged full class price if no-show. If both class days are cancelled due to weather full refund will be given.
- Attendance is required to receive a Certificate of Attendance.
- Class will be filled on a first-come, first-served basis.
- Enroll Early. Seats at class are limited and are only reserved if your fee has been received by Steinbrecher Companies Inc.
- A $30 penalty will be added to any returned checks.

Please Return Registration Form to: Steinbrecher Companies, Inc 13792 247th Ave NW Zimmerman, MN 55398 **OR EMAIL TO:** Septic@SteinbrecherCcompanies.com	**Make Checks Payable to:** Steinbrecher Companies, Inc **Questions??** Call: 763-274-0925 Email: Septic@SteinbrecherCompanies.com

Payment Type (check one)	☐ Money Order	☐ Check	☐ Credit Card	**TOTAL**	**$ 350.00**
Name on CC				**Check#**	
CC Billing Address				**CC Billing Zip**	
Credit Card #		**Exp Date**		**CV2**	

Office Use Only Date Received	Entered	Date Receipt Sent

Minnesota Muscle, *Continued from Page 1*

Joshua Bruender, a third-generation installer for the Minnesota company, secures a Kobota track loader for a trip to another onsite job.

financed. "If we were going to get these done, then financing it ourselves seemed the only way to do it," John Bruender says.

This has been his "retirement" project, and he's done six such systems, from finding the land to helping homeowners set up a nonprofit corporation to manage the finances for their system.

People are interested in these cluster developments, but they are reluctant to put down money based on an idea, Bruender says. That's why it was important for the Bruenders to finance. Money means ground is broken, and once people see action, they are willing to join.

"As people had a need for it, we sold them a share of our investments, and they bought into the cluster," John Bruender says.

"That was a very wet area with lakes on one side and swamps on the other side of the road," Steven Bruender says.

"And the lots were very small," John Bruender says.

The poor soils dictated a mound system and the only suitable soil and area for final treatment was about a mile and a quarter away. There was also about a 90-foot change in elevation. Because the Bruenders prefer having septic tanks at each house for initial treatment, they led effluent from tanks through collection pipes to a couple of small substations that pumped to a main lift station. From there, they ran a 3-inch line to the mound field.

"We crossed our fingers and hoped everything was going to work," John Bruender says. It has for about 10 years, and the company still holds the maintenance contract for the system.

More advanced technologies, such as aerated systems, are not common in this area. They have been approved by the state, but not all counties have approved.

"We've been working with our local counties to help them understand the benefits of these new technologies, and hopefully they will come around and be more in tune," Steven Bruender says.

Because of the high water table, mound systems are the most common type of onsite system they install. Small lot sizes are the biggest challenge the company must overcome in its installations, he says.

In many cases, these are 50-foot lots sized for a weekend cabin, and now people have converted those cabins into year-round homes, John Bruender says. That's where cluster systems are useful, he says. "No matter how small the lot, you can always pump it to a treatment area."

The most challenging system the company installed was a community cluster system... and it was a project the Bruenders financed.

"If we were going to get these done, then financing it ourselves seemed the only way to do it," John Bruender says... "People are interested in these cluster developments, but they are reluctant to put down money based on an idea..."

STARTED WITH A BACKHOE

Bruender began the business in 1965 when he was also farming and working at a factory job. He had purchased a small Ford backhoe for farm work. When the factory job became full-time, he stopped farming.

"I was only working eight hours a day. I didn't want to twiddle my thumbs, so I traded my Ford backhoe for a new Case in 1965. I think I worked 12 or 15 years in the factory — nights — and did construction in the daytime," Bruender says.

The business kept growing and eventually allowed him to quit working at the factory. "It did not bother me to leave the factory. I was raised on a farm, and I had to get back out and work outside," he says.

Business now consists of about 40 percent installations and repairs, 40 percent general excavating, about 10 percent on portable restrooms, and about 10 percent on portable storage. In winter, they do snow removal when other outside work slows down.

Minnesota Muscle, *Continued on Page 7*

Minnesota Muscle, *Continued from Page 6*

In addition to the 530 Case backhoe Bruender still has from the start of the business, the company has a wide selection of equipment to work with. A 2009 Case 130 excavator and a 2016 Kubota SVL75-2 tracked skid-steer handle most of the installations.

Service work is handled by two Ford vans. These are also large enough to hold power tools, generators and other necessary equipment. They have a jetter, but it's not a machine purposely made for that work. It's a pressure washer with a Honda engine and a hose reel. It produces about 3,000 psi and is used primarily for troubleshooting or de-icing pump lines.

The main vacuum truck is a 2000 Freightliner FL112 with a 3,875-gallon aluminum tank, a hoist and 36-inch hatch, and a Battioni WPT 720/P liquid-cooled pump. For tight spots, or on days when the volume of work demands a second vacuum rig, or when the primary truck is out for maintenance, they have a 2000 Freightliner, single-axle truck with a 2,500-gallon steel tank and a Battioni pump.

Last spring they bought a 2018 Ford F-550 pickup for the portable restroom business. It carries a Satellite Industries 625-gallon waste and 325-gallon freshwater stainless steel tank and Conde (Westmoor) SDS pump.

In addition, the company maintains a variety of equipment, including a 2004 Kobelco SK210 excavator and SR45 mini-excavator; a Takeuchi TB800 mini-excavator; Case 580K and 530 backhoes, 1140 and 560 bulldozers, and W24 and 621 front end loaders; Kubota SVL95 and SVL75-2 track loaders; a Dynapac CA15 sheepsfoot roller; Freightliner semitractor with Fontaine Trailer low-boy hauling trailer; and Freightliner, Mack, Volvo, GMC and International dump trucks with bodies from Crysteel, J-Craft, and R/S-Godwin Truck Body of Allen, Kentucky.

FINDING GOOD HELP

Finding good equipment operators has been difficult in south-central Minnesota (Eagle Lake is about 90 miles southwest of Minneapolis and St. Paul). "There's quite a labor shortage everywhere," Steven Bruender says. "We work with a lot of other trades, and we hear the same thing: It's hard to find a good helper or any help at all."

Sometimes they find a person looking for a different work environment, and they're lucky if they find someone coming from a different type of construction work. "Mostly we want someone with a positive attitude and who is willing to learn," he says.

"Also," John Bruender adds, "if we hire someone with a little bit of aptitude, we can train them the way we want. Sometimes people who have a lot of experience don't work out because their experience was bad."

His dad always used to hire farm boys because they had a good work ethic, Steven Bruender says. Today there are fewer farm boys, and many seem more interested in having jobs involving computers rather than getting outside to run equipment.

Minnesota Muscle, *Continued on Page 8*

Minnesota Muscle, *Continued from Page 7*

The company doesn't provide health insurance. That's a really tough deal for small businesses to handle, Bruender says. They do provide a competitive wage, 401(k) plan with a company match, and paid vacations. When employees need days off, they work it out, which may mean trading days around. A couple of the employees are farmers, and the Bruenders are happy to let them borrow equipment for farm work.

MARKETING STRATEGY

The company's marketing efforts were through a website and some of the larger local phone books, but the cost seemed to exceed the benefits. They are currently taking a new direction and building a new website for the construction side. Also, a Facebook page set up a few years ago produces some contacts.

They found a local web designer who works with auto dealers and some of the larger companies in nearby Mankato. He is redesigning the company website and has a number of marketing ideas, Bruender says. One is an online store for the portable restroom and storage container business. The vision is to allow customers to see the offerings, get prices and book service online. Through the new website, they will be able to track the results of electronic marketing to know what is working and what isn't.

They also do some advertising in local publications such as the magazines published for lake associations in the area.

Expansion into a bigger company is not a goal. "We'd like to stay kind of the size we are," Bruender says. His son will be 24 this fall and is working toward more state licenses so he can be more involved in the business. In a few years, he'll probably move into the office and work with bids with the hope that he will eventually take over the business.

"There's a lot of opportunity out there for work, and I think the biggest challenge is finding the people who want to do this kind of work. I don't know if that's a phase we're in or if it's a long-term problem," Steven Bruender says. "At this point, we just concentrate on good customer service and being as efficient and profitable as we can and work with the people we have. I think that's a pretty good goal for now."

RESTROOMS AND STORAGE

J.R. Bruender Construction recently bought a Ford F-550 vacuum truck to serve the company's portable restroom operation. The company's inventory of 100 Satellite Industries restrooms is not a large number, but it's enough.

"Mostly dad started this as a side business to add to the other services we offer," says Steven Bruender, who owns the company started by his father, John R. Bruender, more than 50 years ago. "We are geared for weekend events at people's homes, and we get a lot of orders for construction sites."

It's not a part of the business that Steven Bruender has pushed, and the company has been doing so well with its other work that he hasn't had time to think about whether to add more units.

A construction project gave a push to another side business. The project was a large amount of commercial building work in nearby Mankato, Minnesota, and John Bruender bought a few portable storage containers and offered them to contractors who needed to secure equipment on site.

Containers have also been used by people who had a flood or fire in their homes and needed to move goods out of the house while repairs were in progress. People doing extensive remodeling find containers useful for temporary storage of their belongings. People who are moving can load goods into it at the old home, and Bruender will deliver it to the new home. If there's a gap between moving out and moving in, the company will store the container at its yard.

The company bought 50 storage units. Usage is split about 50-50 between residential and commercial customers. Together the storage and portable restroom services require the attention of one employee full time. ■

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Dane Wendland uses a CST/Berger ALGR grade laser, while John Kahnke operates a Case CX130 excavator on a job site.

UNIVERSITY OF MINNESOTA

Research Documents MnDOT Chloride Use

Rest area water softeners and their effects on septic systems

By Alycia Overbo, Sondra Larson, and Sara Heger, Water Resources Center at University of Minnesota

Chloride levels in Minnesota surface water and groundwater resources are increasing and maximizing efficiency of commercial water softening can reduce chloride discharge to the environment. A study was conducted to evaluate water softener settings and functionality at five Minnesota Department of Transportation (MnDOT) rest area sites and to compare chloride levels in their septic systems. Sites included: Marion Rest Area (RA), Blue Earth Westbound (WB) RA, Oakland Woods RA, Fuller Lake RA, and Central Minnesota Travel Information Center (TIC). Water softeners were inspected by water treatment professionals and samples were collected to evaluate chloride levels in septic system lift stations. Additionally, water quality tests were conducted to characterize drinking water iron, hardness, and chloride levels. Water softener efficiency and chloride contributions from softeners and other major sources were estimated for each site based on water use and salt use records.

Chloride levels in the septic system lift stations were found to range from 488-1730 mg/L (Figure 1), with the highest chloride levels found at sites with the lowest estimated softener efficiency. The highest wastewater chloride levels were observed in Blue Earth WB RA, where the water softener meter was broken and the softener was set to regenerate every few days instead of on demand. Water softeners were estimated to contribute between 77-92% of the chloride measured across the site septic systems, with the remaining chloride coming from human waste and drinking water chloride concentrations (Figure 1).

Brine from water softener discharge has very high chloride levels and previous research has found that elevated chloride levels may have an inhibitory effect on microorganisms in septic tanks. The chloride levels observed across the rest area sites were high, indicating they may be impacting septic system performance and treatment. Reducing chloride discharge from softeners by increasing salt use efficiency is beneficial to septic systems. Recommendations to maximize commercial softening efficiency include: using demand-based, twin-tank softeners; periodically servicing softeners to check settings and functionality; keeping records of salt purchases and use; using iron filters in areas with high iron levels and routing discharge away from the septic system; and using results of laboratory water quality tests to establish water softener settings. If a home or facility has a water softener, it is wise to ensure it using as little salt as needed or to direct the softener discharge away from the septic system. ■

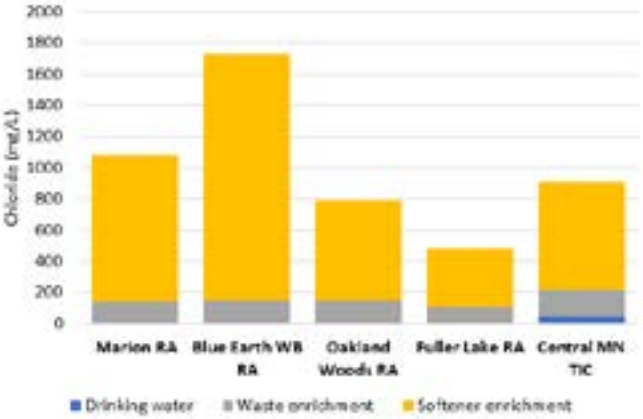

Figure 1. Chloride concentrations in rest area (RA) septic systems and estimated source contributions.

Innovative Solutions, *Continued from Page 1*

Haeg *(shown left)* works mostly in Stearns County, where glacial outwash plains have zero treatment areas. "Initially, many contractors believed they'd have to build mound systems," says Haeg. "There was a lot of stress in how to deal with those sites because they could dig to China without hitting the water table and establishing the required 3 feet of vertical separation."

Haeg took a step back to gain fresh insight. "There's a difference between a limiting condition such as water tables or seasonally high saturated soils and soils that don't offer treatment credits," he says. His design solution was to excavate the no-credit soil, bring in clean washed sand, and build on top of it. Now soil corrections are becoming commonplace to mitigate unbuildable sites.

Minnesota's numerous lakes created another challenge for Haeg. A lakeside property had a floodplain elevation that required a mound so tall that the footprint wouldn't fit on the lot. Haeg's solution split the system into a single-pass sand filter inside a PVC-lined basin, then pumping the effluent to a shorter mound with fewer chambers (Infiltrator Water Technologies).

"We achieved the 3 feet of vertical separation in two stages," he says. "Wastewater passed through 2 feet of sand, then into the mound with 12 inches of vertical separation. We called it our 2+1 system and have several in service." ■

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UNIVERSITY OF MINNESOTA

Hold It! Check Out Care Products Before Use

Another Product That Could Harm Septic Systems

If your customers are frequently indulging in the use of bath bombs, it could mean bad news for their onsite system

By Sara Heger, Ph.D., Online Exclusives - Onsite Installer, July 05, 2018

Bath bombs are hard-packed mixtures of dry ingredients that effervesce when wet. They are used to add essential oils, scent, bubbles and color to bathwater. They are a mixture of salts, colorants, oils and solid items such as flower petals or glitter. When added to a bath, the sodium bicarbonate reacts with citric acid to release carbon dioxide gas (like Alka-Seltzer). As it is breaking down, it releases colorants, fragrances, salts and oils.

Potential problems

1. Solid particles in bath bombs could include natural things like lavender buds and flower petals or synthetic materials such as glitter and confetti. None of these items will dissolve. Along with the other items present in the waste stream, these could plug up plumbing and negatively affect the septic system. It is best to use bath bombs that do not contain solid particles or you could place a length of pantyhose or a fine mesh strainer over the tub drain to collect any solids. The natural products could contribute to the oxygen demand of the system and the synthetic ones could accumulate in the tank, clog effluent filters and potentially harm downstream components.

2. There are fats and oil in most bath bombs. Oils are liquid at room temperature and will make their way to the septic tank where they will hopefully float to the top and accumulate in the scum layer. Fats or butters in bath bombs can be a problem as they have a variety of melting points and if they cool too fast while traveling through the pipes, they can solidify and create a blockage similar to grease in the kitchen. Typical bathwater is usually around 105 degrees F. Cocoa butter has a melting point around 97 degrees F, but at the end of the bath, the water may have cooled to close to 98 degrees. When the drain is opened, the pipes are easily going to bring that temperature below the 97 degrees F solidification point and potentially create a buildup in the interior plumbing. Most bath bombs have such a low butter content that it should not create much of an issue in the plumbing, but if bombs are used frequently, it could accumulate in piping and the tanks outside the home. Bath "truffles" have a much higher butter content and should be avoided.

   These oils and greases can accumulate in the tank, clog effluent filters or exert an additional oxygen demand in the overall system.

3. The salts used in some bath bombs may not totally dissolve. Partially dissolved bath salts can result in clogs as a few undissolved chunks can become caught in the drain, which will then catch hair and other pieces of debris. In high amounts, these added salts will harm the bacteria in the system.

In general, bath bombs are not a product recommended for frequent use for those on septic systems. For those connected to wastewater treatment plants, care should be taken to not clog drains. ■

About the author: Sara Heger, Ph.D., is an engineer, researcher and instructor in the Onsite Sewage Treatment Program in the Water Resources Center at the University of Minnesota. She presents at many local and national training events regarding the design, installation, and management of septic systems and related research. Heger is education chair of the Minnesota Onsite Wastewater Association and the National Onsite Wastewater Recycling Association, and she serves on the NSF International Committee on Wastewater Treatment Systems. Ask Heger questions about septic system maintenance and operation by sending an email to kim.peterson@colepublishing.com.

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2018 Tony Ruppert Scholarship Winning Essay

Black Water

by Sydney Parrott of of Harrisburg, NC, 2nd Place Winning Essay

Shoreline at Agua Negra, Dominican Republic. Photo - http://republicadominicanamission.blogspot.com/2012/01/agua-negra-mustard-seed.html

As I look out into the beach in front of me, I am shocked by the amount of trash and sewage that is being carelessly thrown into the water. What was once a beautiful beach, that all of the people in the Dominican Republic could enjoy, has now become the final destination place for garbage and human waste. Residents have polluted the water with raw sewage and garbage. Foreigners have contributed to the pollution significantly as well. In the distance I can see cruise ships emptying tons of sewage into the water, creating back streams of filth that find their way to the mainland. I have learned from locals that this area of the city is called Agua Negra, which is translates to "black water".

It is clear that the condition of this water is not only repulsive, but a major health hazard due to the high levels of sewage and human waste that is present. Despite the filth and smell that surrounds us; children continue to play in the water, residents bathe, clothing is washed, and for many it remains a source of drinking water. I had traveled to the third world as a student volunteer for a humanitarian medical organization. Looking around me I saw children with severe diarrhea caused by intestinal infections, skin and eye infections, and open wounds. Many of these problems caused children to need urgent care to prevent worsening illness or death due to dehydration or infections. In speaking with the medical professionals on our trip, I learned that many of these illnesses were caused by lack of access to clean water to drink and bathe in.

The repercussions of using this water is life threatening and can result in contracting many water borne diseases. "Infectious diseases can be spread through contaminated water. Some of these water-borne diseases are Typhoid, Cholera, Paratyphoid Fever, Dysentery, Jaundice, Amoebiasis and Malaria." (TheWorldCounts 2014) It is clear that the ingestion or use of polluted water on the human body results in contracting a disease or even death, so why are people still using this water? The answer is simple. People in third world countries do not have access to clean water on account of lack of sanitation and appropriate water treatment systems.

There have been many efforts made to improve the quality of water in third world countries, not only in the Dominican Republic. For example, the Gates Foundation is funding a world sanitation proposal which will help families in poor countries all around the world eliminate the risk of contracting water borne diseases from human waste. "For less than $100 and a day's work, a single family in an undeveloped country can construct a solid waste disposal system that not only processes the waste, but requires no electricity or additional energy while destroying harmful pathogens" (Merritt 2011) This system is a feasible solution to waste disposable because it is financially viable, does not have ongoing costs, and has been proven to work effectively. It could be the difference between life and death to reduce the incidence of exposure to harmful pathogens in these poor communities.

Marc Deshusses is a professor at Duke's Pratt School of Engineering and teaches civil and environmental engineering. He is in the process of developing this life changing septic system that uses methane gas to break down waste and produce enough heat to kill the bacteria and viruses that are found in human waste. (Merritt

Ruppert 2nd Place Essay - Parrott, *Continued on Page 13*

Ruppert 2nd Place Essay - Parrott, *Continued from Page 12*

2011) The Gates Foundation granted Deshusses with $100,000 to bring his vision to life, and give people in developing countries a healthier future. Deshusses states, "People in countries that lack proper sanitation for their sewage desperately need a disposal method that is cheap, simple to implement and maintain, and reliable," Deshusses said. "We believe the proposed system could represent a major advance in environmental and health protection for developing countries." (Merritt 2011) The work Deshusses and his foundation are doing for people in developing countries is so important and will save so many lives. Not only will it improve the lives of our present generations, it will also ensure a brighter future for the generations to come.

I hope our country not only continues to value the importance of water quality and wastewater treatment, but gives aid to other developing countries that are in need of sewage systems and filtering water pumps.

Every minute, a child dies due to a water borne disease (DoSomething.org)

Not only have there been major advances in eliminating the harmful bacteria and viruses in human waste, clean water systems are also being introduced and utilized in these countries. In developing countries all over the world, women and children spend hours every day working to obtain water, which is often polluted. Many environmental engineers have developed ground wells which produce clean drinking water to all of the locals. Companies like Maji Safi International LLC. are establishing ground water wells with ceramic filters to provide clean drinking water in areas that water was not previously available. The great thing about Maiyo's filters is that it takes only 30 minutes of purifying the water with chlorine before it is ready to drink. Each one of these filters is capable of producing 200 liters of clean drinking water every single day. To put that in comparison, 200 liters of water is about 845 cups of water. This filter has the potential to be nothing short of a miracle for schools and communities all around the world. John Maiyo, the founder of the company states, "Access to clean water is a huge problem that many countries and communities face around the world, especially developing countries," Maiyo said. "Around the globe, twice the population of the United States lives without access to safe drinking water, and globally one-third of all schools lack access to safe water and adequate sanitation." (Maiyo 2016) It is awareness like this that allows engineers like himself to take his knowledge and skills and use them to help countries that do not have the same luguries as those in the United States and wealthier countries. It is truly a blessing that clean water and proper sewage disposal is a societal norm here in the United States.

Due to all of the things I have seen during my work in developing countries and learned about through reading, it is clear that people in the United States as well as other wealthy countries are truly blessed to reliable septic systems and clean drinking water. It is people like you, the Minnesota Onsite Wastewater Association, who allow us to be able to go about our day to day without worrying about coming into contact with dangerous bacteria in human waste or even pollutants in our water. I hope our country not only continues to value the importance of water quality and wastewater treatment, but gives aid to other developing countries who are in need of sewage systems and filtering water pumps. Every minute, a child dies due to a water borne disease (DoSomething.org). I currently do a lot of charity work in the Dominican Republic and I have seen first hand how dirty water and untreated human waste can impact the quality of life for people in developing countries. In the future, I hope to implement my knowledge of all of the different systems I learned about and bring them to the countries that I work in so that no more children have to live with drinking black water. ■

Work Cited Page

"How Does Water Pollution Affect Humans?" *The World Counts,* ***www.theworldcounts.com/stories/how-does-water-pollution-affect-humans.***

"Gates Foundation Funds Novel Third World Sanitation Proposal." *Duke Pratt School of Engineering,* ***1 Mar. 2018, pratt.duke.edu/about/news/gates-foundation-funds-novel-third-world-sanitation-proposal.***

"Low-Cost Technology to Better Provide Drinking Water in Developing Countries." *Phys.org - News and Articles on Science and Technology,* ***Phys.org, phys.org/news/2016-11-low-cost-technology-countries.html.***

"11 Facts About Water in the Developing World." *DoSomething.org | Volunteer for Social Change,* ***www.dosomething.org/us/facts/11-facts-about-water-developing-world.***

2018 Tony Ruppert Scholarship Winning Essay

Stormwater Management

By Simon Van Dyken of Prinsburg, MN, 2nd Place Winning Essay

Soil erosion from construction sites has been described as an important source of sediment pollution in many parts of the United States, including a large amount in the state of Minnesota. I think that Subsurface Sewage Treatment System (SSTS) contractors will do well to concern themselves with construction site stormwater management. The focus on proper treatment of sewage is a great thing, but concern about the amount of sediment erosion that is occurring on construction sites is also important.

The Minnesota Pollution Control Agency (MPCA) put out a statistic from the U.S. Environmental Protection Agency which estimates that 20 to 150 tons of soil per acre is lost every year to stormwater runoff from construction sites (MPCA, 2018).

Many people may not think that erosion from smaller construction sites is a big problem. However, in a study from two small construction sites in Dane County, Wisconsin, researchers found that small construction sites are potential sources of large amounts of sediment erosion (Owens, et al, 2000). Researchers found that Sediment loads from the two monitored construction sites were ten times larger than typical loads from rural and urban land uses in Wisconsin.

Steve Vis, Vice President of Minnesota Land Improvement Contractors of America (MNLICA), characterizes construction site erosion control measure as "very important" (2018). Vis explains that common practices range from temporary cover to silt fencing for perimeter control. Vis goes on to state that all contractors should be striving to implement good erosion control practices in order to become "good stewards of the land" and to also assure the public in the surrounding area that contractors are doing their part to prevent as much soil erosion as possible.

In August of 2013, the MPCA issued the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) General Stormwater Permit for construction areas. This permit states that any owners or operators of construction action disturbing one or more acre of land will need to receive the construction stormwater permit (MPCA, 2017). Agricultural land disturbing activity is exempt from this permit requirement. Contractors or homeowners that are obtaining a permit are required to develop a Stormwater Pollution Prevention Plan (SWPPP), submit and application, and a $400 dollar fee. The SWPPP is a plan that informs people of different steps that can be taken to prevent pollution discharge

Ruppert 2nd Place Essay - Van Dyken, *Continued on Page 15*

Ruppert 2nd Place Essay - Van Dyken, *Continued from Page 14*

from construction sites. This plan is a very valuable tool and can become very important to contractors that work on construction sites. Permittees must also implement the SWPPP, conduct regular inspections, and maintenance Best Management Practices (BMPs).

The MPCA has supplied people with a lot of different solutions to erosion and sediment control. These solutions include temporary vegetation, mulching, silt fences, biologs, and downspout extenders. These a just a couple of many solutions that can be used by contractors. Temporary vegetation can protect the soil from rain and slow runoff, but will not permanently protect the ground. This is a solution that is not very expensive and will still help out with erosion prevention. Mulching also acts as a temporary cover to protect the soil from rain and prevent soil from running off into storm drains and into a bigger body of water in the future. Silt fences are a very common thing on bigger construction sites because of how effective they are when they are installed. They slow runoff and allows puddles or ponds to form so that soil can settle down before the water is pushed out of the site. Downspout extenders allow water to be passed directly from your roof to the pavement. This will prevent any type of soil erosion because the water is going straight to the pavement and not washing any sediment away.

According to the Environmental Protection Agency (EPA, 2005) researchers Brown and Caraco identified several objectives that should be addressed in effective Erosion and Sediment Control planning:

- Minimize clearing and grading
- Protect waterways and stabilize drainageways
- Phase construction to limit soil exposure
- Stabilize exposed soils immediately
- Protect steep slopes and cuts
- Install perimeter controls to filter sediments
- Employ advanced sediment-settling controls

When contractors educate themselves on permitting requirements and proper stormwater management and erosion control practices and put these practices to use, Minnesota's surface waters receive significant protection.

Brian Green, a MPCA Compliance and Enforcement staff member, states that one of the most common failures that he observes in construction site stormwater management is the failure to stabilize soils when construction activities temporarily or permanently cease (2018). Green goes on to explain that the most important thing for excavation and sewage treatment contractors to keep in mind is to have the mindset to do everything they can to keep the sediment on site. If they keep that in mind while preparing the site for construction activities (following the SWPPP and installing the appropriate BMPs), while completing the required inspections, and while maintaining the BMPs, the environment and the waters of Minnesota will definitely benefit greatly. I encourage all contractors to consider the impact they can have in maintaining Minnesota's clean water through proper stormwater management. ■

Citations:

Environmental Protection Agency. 2005. National Management Measures to control Nonpoint Source Pollution from Urban Areas. https://www.epa.gov/sites/production/files/2015-09/documents/urban_guidance_0.pdf.

Green, B. 2018. MPCA Compliance and Enforcement staff member. Personal communication.

Minnesota Pollution Control Agency. 2018. Construction Stormwater. https://www.pca.state.mn.us/water/construction-stormwater#overview-cd12c8dd.

Minnesota Pollution Control Agency. 2017. Stormwater Compliance Assistance Toolkit for Small Construction Operators https://www.pca.state.mn.us/sites/default/files/wq-strm2-09.pdf.

Owens, et al, 2000. Soil erosion from two small construction sites, Dane County, Wisconsin. USGS Fact sheet 109-00

Vis, S. 2018. Vice President of Minnesota Land Improvement Contractors of America. Personal communication.

2019 OSTP Certification Course Descriptions and Offerings

Introduction to Onsite Systems (15 Credits)

Fee: $370 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

10-1	Brainerd - The Woods Event Center	2/4-6/19	Deadline: 1/28/19
10-2	New Ulm - Turner Hall	2/25-27/19	Deadline: 2/18/19
10-3	Cloquet Forestry Center	4/22-24/19	Deadline: 4/15/19
10-4	St. Cloud - Moose Lodge	11/11-13/19	Deadline: 11/4/19

Installing Onsite Systems (12 Credits)

Fee: $275 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

112-1	Brainerd - The Woods Event Center	2/7-8/19	Deadline: 1/31/19
112-2	New Ulm - Turner Hall	2/28-3/1/19	Deadline: 2/21/19
112-3	Cloquet Forestry Center	4/25-26/19	Deadline: 4/18/19
112-4	St. Cloud - Moose Lodge	11/14-15/19	Deadline: 11/7/19

Basic Design of Onsite Systems (24 Credits)

Course begins at 1:00 pm Fee: $465 Exam: Yes

This 24-hour workshop teaches attendees to properly design various septic systems in preparation for the Basic Designer exam. Enrollees must have the current manual to use during the workshop. Onsite Manuals are available for $50.

PREREQUISITE: Introduction to Onsite Systems

Topics include:

- Flow determination
- Tank design
- System design
- Pumps and pressure design

20-1	Alexandria - Douglas County Public Works Building	2/11-15/19	Deadline: 2/4/19
20-2	Cloquet Forestry Center	4/29-5/3/19	Deadline: 4/22/19
20-3	New Ulm - Turner Hall	12/9-13/19	Deadline: 12/2/19

Soils (15 Credits)

Fee: $320 or $490 with Munsell Color Guide Exam: Yes

This 15-hour workshop prepares attendees for the Soils exam and provides participants with a detailed understanding of how particular soils affect the treatment of sewage. Participants will receive instruction at a field location. Munsell Color Guides are available for $165 and Sand Cards for $10. This class does NOT meet the 6-hour soils continuing education requirement for all Designer and Inspector categories.

PREREQUISITE: Introduction to Onsite Systems

Topics include:

- Percolation testing
- Soil characteristics
- Field evaluations
- Soil survey use

515-1	New Ulm - Turner Hall	5/22-24/19	Deadline: 5/15/19
515-2	Cloquet Forestry Center	6/18-20/19	Deadline: 6/11/19
515-3	Alexandria - Douglas County Public Works Building	9/18-20/19	Deadline: 9/11/19

Inspecting Onsite Systems (15 Credits)

Course begins at 1:00 pm Fee: $20 Exam: Yes

This 15-hour workshop identifies Minnesota requirements for existing and new system inspections and prepares participants for the Inspector exam.

PREREQUISITE: Introduction to Onsite Systems.

Topics include:

- Administrative requirements
- New system inspection
- Existing system inspection
- Tools and procedures

30-1	Alexandria - Douglas County Public Works Building	6/4-6/19	Deadline: 5/28/19

Maintaining Onsite Systems (15 Credits)

Fee: $320 Exam: Yes

This 15-hour workshop gives participants an overview of system management, the federal requirements for land application of septage, and prepares people for the Maintainer exam.

PREREQUISITE: Introduction to Onsite Systems

Topics include:

- Land application rates
- Record keeping
- Maintaining Type I SSTS
- Soil survey use

415-1	New Ulm - Turner Hall	4/17-19/19	Deadline: 4/10/19

Intermediate Design & Inspection of Onsite Systems (24 Credits)

Course begins at 1:00pm Fee: $465 Exam: Yes

This 24-hour course prepares individuals for the Intermediate Design and Inspection exam. Intermediate Designers can design Type I - IV systems for domestic strength wastewater up to 2,500 gpd. Intermediate Inspectors can review these designs, inspect these systems, and administer on-going compliance with their operating permits. Enrollment in this workshop includes copies of the MPCA Design Guidance.

PREREQUISITE: Full Certification as a Basic Designer or Inspector; Repeating the OSTP Basic Design course is highly recommended and can be counted as continuing education.

Topics include:

- ATUs
- Media filter applications
- Flow equalization
- Soil treatment design reductions

27-1	Alexandria - Douglas County Public Works Building	4/1-5/19	Deadline: 3/25/19

Advanced Design & Inspection of Onsite Systems (21 Credits) Fee: $450 Exam: Yes

This 21-hour course includes a field portion and focuses on the design and inspection of Type IV systems with flows greater than 2500 gpd. This course explores high strength waste, site assessment techniques, and prepares attendee for the Advanced Design exam.

PREREQUISITE: Full Certification as a Basic Designer or Inspector and successful completion of Intermediate exam.

Topics include:

- Collection system design
- Nitrogen & phosphorus removal
- Groundwater mounding
- High strength waste

29-1	Alexandria - Douglas County Public Works Building	5/7-10/19	Deadline: 4/30/19

Enroll online: septic.umn.edu

2019 OSTP Certification Course Descriptions and Offerings

Service Provider (21 Credits) Certification Course

Fee: $495 Exam: Yes

This 21-hour workshop prepares attendees for the Service Provider exam and offers an in-depth look into the care of all system types. This course is based on the National O&M Service Provider materials and will include a field component. It is intended for system maintainers, designers or MPCA certified operators who need training for soil-based system management.

PREREQUISITE: Introduction to Onsite Systems

Topics include the management of:

- Type I O&M
- Type IV O&M
- Collection system O&M
- System troubleshooting

49-1	Mankato - AmericInn	5/28-31/19	Deadline: 5/21/19

Installer Continuing Education (12 Credits)

Fee: $275 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

69-2	New Ulm - Turner Hall	3/18-19/19	Deadline: 3/11/19
69-3	Detroit Lakes - Holiday Inn	11/19-20/19	Deadline: 11/12/19

General Continuing Education (12 Credits)

Fee: $275 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

60-2	Bemidji - Hampton Inn	3/5-6/19	Deadline: 2/26/19
60-3	Little Falls - Initiative Fdn	11/6-7/19	Deadline: 10/30/19
60-4	St. Cloud - Moose Lodge	12/17-18/19	Deadline: 12/10/19

Design/Inspector Continuing Education (12 Credits)

Fee: $275 Exam: No

This 12-hour workshop is designed to meet the continuing education requirement of SSTS professional holding a designer and/or inspector certification. The course will focus on design and inspection issues.

Topics include:

- Rule/policy updates
- Commercial systems
- How to add capacity
- Challenging inspections
- System design with new forms

82-1	St. Cloud - Moose Lodge	4/15-16/19	Deadline: 4/8/19

SSTS Design Forms Training Continuing Education

(4 Credits) Fee: $105 Exam: No

This 4-hour workshop will review and use the current design forms for completing and submitting a new system design. This allows for people with limited experience to get hands-on practice with design forms. This workshop will be in a computer lab and has limited enrollment.

Topics include:

- Design forms
- Managment plans
- Preliminary and field evaluation forms

21-1	Chaska - Carver County Courthouse	2/19/19	Deadline: 2/12/19
21-2	Cloquet Forestry Center	3/21/19	Deadline: 3/14/19

Soils Continuing Education (6 Soils-Specific Credits)

Fee: $245 or $415 with Munsell Color Guide Exam: No

This 6-hour course couples classroom and field training to meet the soils-specific MPCA continuing education requirement 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

55-1	Alexandria - Douglas County Public Works Building	5/20/19	Deadline: 5/13/19
55-2	Fairmont - Holiday Inn	6/11/19	Deadline: 6/4/19
55-3	Pipestone - Pipestone Country Club	7/17/19	Deadline: 7/10/19
55-4	Pelican Rapids - Dunn Township Town Hall	8/13/19	Deadline: 8/6/19
55-5	Center City - Chisago County Government Center	8/22/19	Deadline: 8/15/19
55-6	Little Falls - Initiative Fdn	9/10/19	Deadline: 9/3/19
55-7	Red Wing - Goodhue County Law Enforcement Center	10/2/19	Deadline: 9/25/19

Design Field Day Continuing Education

(6 Credits) Fee: $155 Exam: No

This 6-hour workshop combines a classroom and field component to disuss the process of design. The course will review the requirements for designing a system and the required aspects to be submitted to the LGU. The field portion will be an evaluation of the soil characteristics and completion of the design report.

Topics include:

- Required design steps
- System loading
- Working with elevations
- Soil applications and concerns

63-1	Pelican Rapids - Dunn Township Town Hall	8/14/19	Deadline: 8/7/19

Onsite Sewage Treatment Program
2019 Certification Classes and Continuing Education

Visit septic.umn.edu for easy online registration
All courses begin at 8 a.m. unless otherwise noted

Enroll early - registration is limited

INTRODUCTION TO ONSITE SYSTEMS $370 *Includes manual*
- ☐ 10-1 Brainerd 2/4-2/6/2019 Deadline: 1/28/2019
- ☐ 10-2 New Ulm 2/25-2/27/2019 Deadline: 2/18/2019
- ☐ 10-3 Cloquet 4/22-4/24/2019 Deadline: 4/15/2019
- ☐ 10-4 St. Cloud 11/11-11/13/2019 Deadline: 11/4/2019

INSTALLING ONSITE SYSTEMS $275 * Manual included w/Intro*
- ☐ 112-1 Brainerd 2/7-2/8/2019 Deadline: 1/31/2019
- ☐ 112-2 New Ulm 2/28-3/1/2019 Deadline: 2/21/2019
- ☐ 112-3 Cloquet 4/25-4/26/2019 Deadline: 4/18/2019
- ☐ 112-4 St. Cloud 11/14-11/15/2019 Deadline: 11/7/2019

BASIC DESIGN OF ONSITE SYSTEMS $465 1:00 PM START
- ☐ 20-1 Alexandria 2/11-2/15/2019 Deadline: 2/4/2019
- ☐ 20-2 Cloquet 4/29-5/3/2019 Deadline: 4/22/2019
- ☐ 20-3 New Ulm 12/9-12/13/2019 Deadline: 12/2/2019

SOILS $320/$490 with Munsell Color Guide
- ☐ 515-1 New Ulm 5/22-5/24/2019 Deadline: 5/15/2019
- ☐ 515-2 Cloquet 6/18-6/20/2019 Deadline: 6/11/2019
- ☐ 515-3 Alexandria 9/18-9/20/2019 Deadline: 9/11/2019

INSPECTING ONSITE SYSTEMS $290 1:00 PM START
- ☐ 30-1 Alexandria 6/4-6/6/2019 Deadline: 5/28/2019

MAINTAINING ONSITE SYSTEMS $320 * Manual included w/Intro*
- ☐ 415-1 New Ulm 4/17-4/19/2019 Deadline: 4/10/2019

INTERMEDIATE DESIGN AND INSPECTION $465 1:00 PM START
- ☐ 27-1 Alexandria 4/1-4/5/2019 Deadline: 3/25/2019

ADVANCED DESIGN AND INSPECTION $465
- ☐ 29-1 Alexandria 5/7-5/10/2019 Deadline: 4/30/2019

SERVICE PROVIDER $495 (includes CIDWT O/M Manual)
- ☐ 49-1 Mankato 5/28-5/31/2019 Deadline: 5/21/2019

INSTALLER CE $275
- ☐ 69-2 New Ulm 3/18-3/19/2019 Deadline: 3/11/2019
- ☐ 69-3 Detroit Lakes 11/19-11/20/2019 Deadline: 11/12/2019

GENERAL CE $275
- ☐ 60-2 Bemidji 3/ 5- 3/6/2019 Deadline: 2/26/2019
- ☐ 60-3 Little Falls 11/ 6-11/7/2019 Deadline: 10/30/2019
- ☐ 60-4 St. Cloud 12/17-12/18/2019 Deadline: 12/10/2019

DESIGN CE/INSPECTOR CE $275
- ☐ 82-1 St. Cloud 4/15-4/16/2019 Deadline: 4/ 8/2019

SSTS DESIGN FORMS TRAINING CE $105
- ☐ 21-1 Chaska 2/19/2019 Deadline: 2/12/2019
- ☐ 21-2 Cloquet 3/21/2019 Deadline: 3/14/2019

SOILS CE $245/$415 with Munsell Color Guide
- ☐ 55-1 Alexandria 5/20/2019 Deadline: 5/13/2019
- ☐ 55-2 Fairmont 6/11/2019 Deadline: 6/ 4/2019
- ☐ 55-3 Pipestone 7/17/2019 Deadline: 7/10/2019
- ☐ 55-4 Pelican Rapids 8/13/2019 Deadline: 8/ 6/2019
- ☐ 55-5 Center City 8/22/2019 Deadline: 8/15/2019
- ☐ 55-6 Little Falls 9/10/2019 Deadline: 9/ 3/2019
- ☐ 55-7 Red Wing 10/ 2/2019 Deadline: 9/25/2019

DESIGN FIELD DAY CE $155
- ☐ 46-1 Pelican Rapids 8/14/2019 Deadline: 8/ 7/2019

Please do not staple checks or cut the form!

1. *EMAIL _____

2. *NAME _____
Please Print First Middle Initial Last

3. *PREFERRED ADDRESS _____

4. *CITY _____ 5. *STATE _____ 6. *ZIP _____ ☐ Home ☐ Business

7. COMPANY _____

8. *PHONE ( ) _____

10. PAYMENT OPTION: ☐ Check or Money Order ☐ Local Government PO attached

*Indicates required field

Total for selected workshops: $ _____

Late fee ($45 per workshop): $ _____

Updated Manual ($50):
A manual is provided with enrollment in Introduction to Onsites; $ _____

Munsell Color Book ($170): $ _____
Recommended for Soils and Soils CE courses

Sand Card ($12): $ _____
Recommended for Soils and Soils CE courses

Total Amount Due: $ _____

Payment is required to reserve a spot in any course.

Confirmation with instructions will be EMAILED along with a receipt.

Questions?
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MOWA
MINNESOTA ONSITE WASTEWATER ASSOCIATION

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

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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.

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

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Address _____ City/State/Zip _____

Phone _____ Mobile/800# _____ Fax _____ Email _____

3rd Member _____ Title _____ County _____

Address _____ City/State/Zip _____

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(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.**

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