THE LITTLE DIGGER

MOWA minnesota onsite wastewater association

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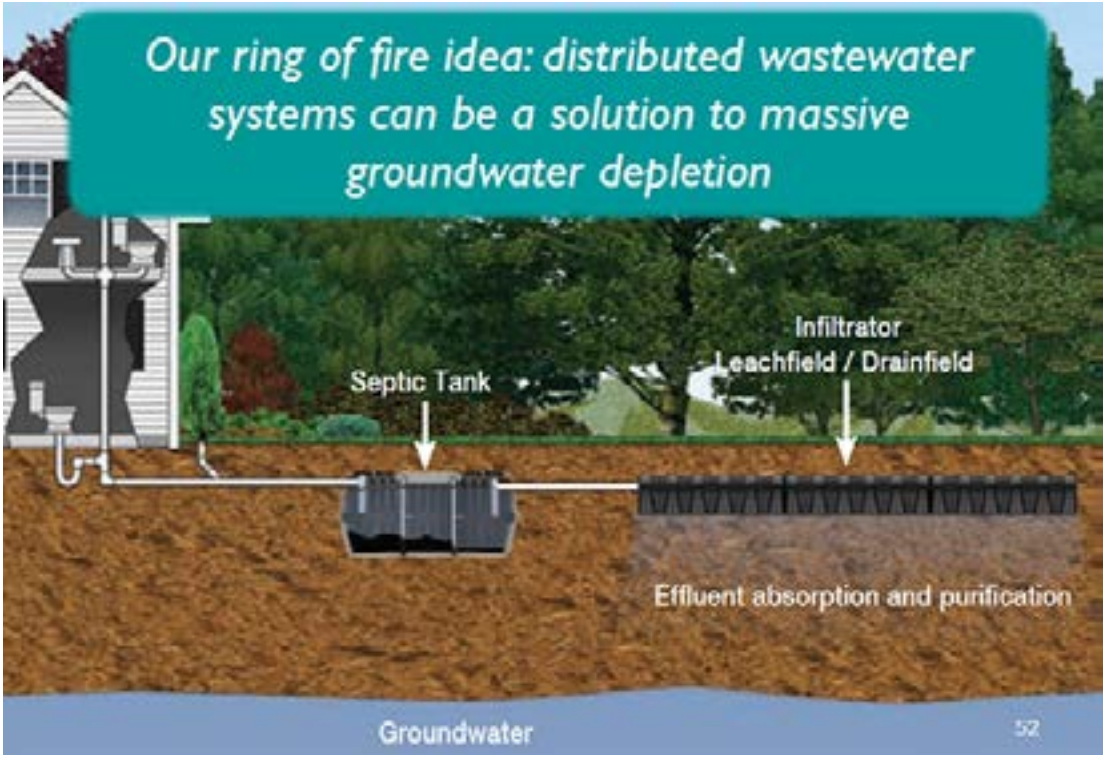
A bi-monthly publication

MOWA convention keynote speaker says SSTS can help recharge nation's declining groundwater aquifers

by MPCA



According to Tom Fritts, a board member and past president of NOWRA (National Onsite Wastewater Recycling Association), it isn't difficult to see the nation is experiencing a crisis in declining levels of fresh groundwater. You can see it if you visit Hoover Dam and look at the water level in Lake Mead. Or the sinkholes in Florida. Minnesota Public Radio has produced a series of stories (What Lies Beneath) that address a host of groundwater issues in Minnesota.

Fritts says the onsite or subsurface sewage treatment system (SSTS) industry can play a role in helping to replenish falling aquifers since wastewater from homes and businesses that use SSTS return that water directly back into the ground, eventually recharging local aquifers.

Each day in the United States, 22.5 billion gallons of fresh water is pumped from underground aquifers for personal use. If all 86.5 million homes in the U.S. used SSTS, this would recharge the aquifers at a rate of 22.2 billion gallons per day.

But the fact is, only 25 percent of homes in the country are using SSTS, recharging aquifers at a rate of only 5.6 billion gallons per day. Said another way, 75 percent of homes are connected to centralized wastewater treatment facilities that discharge to surface waters that ultimately send 16.7 billion gallons of treated wastewater to the oceans every day.

Fritts said the SSTS industry is currently growing at a rate of about 5 to 7 percent a year. In order to have a real impact on the rate of aquifer recharge, SSTS professionals need to increase that rate by building confidence and credibility in the industry among not only citizens but also local, state and federal officials.

Convention Keynote Snapshot, *Continued on Page 10*

In this Little Digger

Convention Highlights—Safety and Permitting

Safety Consideration Discovered at 2016 MOWA Conference in St. Cloud

By: Gregory R. Halling, PE Advanced Designer and Inspector

At our annual convention in St. Cloud we had a good discussion in the designer open forum panel discussion about septic tank deterioration. Several theories were discussed regarding the degradation of concrete tanks. As the discussion went on I realized that as an inspector/designer of existing SSTSs I have a potential safety hazard with concrete tanks that could collapse due to corrosion. This does not happen often but one MOWA member said that he has had two tanks in the last two years collapse under him with him being able to get to the side rather than actually falling in. The concrete tanks were very corroded from acid that has formed in the tank. Tanks can decay in 5 to 10 years under certain conditions. One member said that a client called him out to address his problem. The homeowner had been mowing his lawn and the lid collapsed right after he crossed the tank with the mower and the tracks were very visible when the installer visited the site.

This discussion resulted when I showed pictures of my son's tank which had been certified by the maintainer as compliant. I have usually depended on the maintainer to pump out the tank and inspect it and certify it for me. When we went to install the new system, the installer could push his finger through the concrete around the outlet of the tank. There was also a lot of corrosion evident at the water line as noted in the pictures below. So as a designer what can I do to avoid this problem? It was brought up that we can use a selfie stick with our phone to take pictures of the interior of the tank. I have just ordered a selfie stick and intend to use it to inspect my tanks which are 30 years old. By the way if you decide to use your phone on a regular basis for taking pictures inside the tank, you may want to consider getting insurance on your cell phone. For those of you who pump tanks regularly as well as those who certify tanks, I would suggest that you consider a program to inspect the tanks that you pump on a fairly regular basis to make sure that you are not pumping out a tank that may be on the verge of collapsing. If we all participate to make sure all of our tanks are safe, then maybe we can avoid a tragedy in the future.

Spotlight: Taking Care of Technology

Preconference Culminates in Panel About Operating Permits

By Nick Haig, MPCA

A lively panel discussion closed the 2016 MOWA Annual Preconference, "Taking Care of Technology." The day was focused on highlighting the variety of treatment products registered for use in Minnesota. The panel was hosted by Craig Gilbertson from the Minnesota Department of Health and was comprised of Hank Schreifels, Director of the Environmental Health Division for Stearns County; Tim Haeg, an Advanced Designer, Advanced Inspector, Installer, and Service Provider for Watab, Inc.; and Nick Haig, a Program Administrator for the MPCA's Certification and Training Unit.

Operating permits, management plans, and local compliance management efforts

The panel began with an overview of the difference between operating permits and management plans. While all new or replacement systems must have a management plan, state code only requires Type IV, Type V, or SSTS with a design flow > 5,000 gpd to be managed under an operating permit. Operating permits are recommended for holding tanks, Type III SSTS, and existing systems that pose a heightened risk. The key differences are that operating permits define compliance boundaries (acceptable and unacceptable results) and introduce periodic reporting requirements and corrective actions when compliance limits are not met. Management plans do not have these requirements.

Panel members acknowledged that politics can be in play when local officials make environmental decisions, and making the right decision can be both difficult and second-guessed. One audience member asked the panel why

Convention Spotlight, *Continued on Page 8*

From the Executive Director's Office

By Pat Martyn, MOWA Executive Director

We hope you enjoyed the Convention in St. Cloud as much as we did. It was so great to see some old friends, and it was very exciting to see the vitality of the membership. The annual meeting at lunch was a special time, as we were able to report that while we have a long ways to go to get everything exactly right, MOWA is as healthy financially and in terms of membership as it has been in more than a decade. We are off and running again with a new Board of Directors, and have added three terrific operators. Their names and contact info are listed elsewhere in this publication. We also have to bid adieu to some departing members, who served with distinction. You are encouraged to connect with any of those folks if you have a thought about MOWA or want a new idea brought forward. Also, if you would like to be on a Committee, please contact the Chair of the Committee or the MOWA office and we can get you set up. We have succeeded in our goal to improve the volunteer experience inside of MOWA, and your ideas and time are much appreciated.

Now, onto thanking the people who put this Convention together. A round of applause, please, for the Convention Committee that did such a good job organizing the 2016 MOWA Convention. It was a great few days during which we had the MPCA, excellent speakers, and social events, and terrific exhibitors. Of course, the attendees drive the show, and the evaluations were really good. Thanks to all who participated. Especially good to see the Legacy award winners who attended the show.

And, you might be interested in knowing that we raised almost five grand for the scholarship program. Thank you to all who bid for your generosity. Make sure you look at the Tony Ruppert scholarship program that is offered on our website. And don't forget about our MOWA effort to supply a grant to a non-profit.

Lastly, every once in awhile, I see something in a book or newspaper talking about the history of sewers and clean water. Last year I mentioned London's water intake supply was just yards from the direct discharge "pipe" into the river. This year we cannot overlook the devastating news in Flint, MI, and hope that is a continued reminder for the validity of our mission.

	A	B Name	C Trench	D Buckets	E Golf	F Total
1						
2						
3						
4		1 Darren Flygare	0:09	0:31	0:19	0:59
5		2 Chris Klein	0:06	0:50	0:16	1:12
6		3 Dan Fischer	0:13	0:47	0:17	1:17
7		4 Eric Berg	0:17	0:31	0:36	1:24
8		5 John Handrahan	0:19	0:55	0:12	1:26
9		6 Wayne Johnson	0:23	0:36	0:33	1:32
10		7 Jacob Bucknell	0:19	0:50	0:32	1:41
11		8 Mark Ritter	0:23	0:45	0:34	1:42
12		9 Dale Brenhaug	0:23	0:58	0:24	1:45
13		10 Dean Flygare	0:20	0:32	1:03	1:55
14		10 Tim Haeg	0:38	1:10	0:29	2:17
15		11 Bernie Miller	0:35	1:34	0:25	2:34
16		12 Jeff Foster	0:35	1:27	0:52	2:54

MOWA Convention 2016 Roe-D-Hoe Contest Winners

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

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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 to any of the following: MN Onsite Wastewater Association, 5200 Willson Road, Suite 310, Edina, MN 55424 Phone: (952) 345-1141 Toll Free: 888-810-4178 Website: www.mowa-mn.com

MOWA
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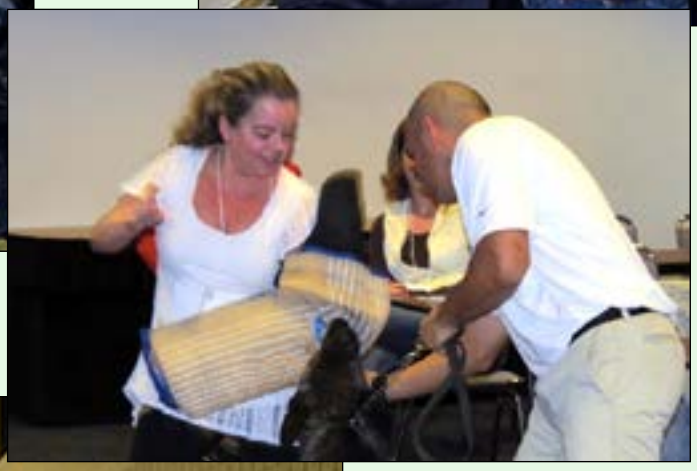

2016 MOWA CONVENTION SNAPS

The MOWA Convention in St. Cloud gave onsite professionals opportunities to (upper left, clockwise): take in the Exhibitors Showcase; gamble with MPCA; learn how to handle aggressive dogs; demonstrate their Roe-D-Hoe skills; network during meals and breaks; and gather detailed product information from industry leaders.

Thanks again to the hardworking Convention Committee!

Convention Session Takes Bite out of Encounters

These bites of wisdom just might save you from the real thing

By the MPCA

Most of the time, working in the subsurface sewage treatment industry isn't very exciting. But it can get really exciting really quickly if your work happens to bring you to a home with an aggressive dog. The time to learn about what to do in that situation is now, not then, and not all the training/information available is created equal.

"Most training and speakers give you advice that sounds good in theory, but will subject you to injury in practice," says Hector Hernandez, a dog bite prevention specialist from Flint, Mich. (shown above at the MOWA conference with his dog and a MOWA volunteer). His keynote address focused on methods he has used during real encounters to escape from aggressive dogs without being bitten. Here are tips to keep in mind before and during an encounter with an aggressive dog to avoid being bitten.

Before an encounter

- As you approach an unfamiliar home, scan the yard and be ready to meet a dog that might live there. Look for evidence of a dog; i.e. a chain tied to a tree, dog toys, dog poop (note the size), yellow dead spots in the grass from dog urine, a beaten path along a fence, etc.
- Plan in your head an escape route.
- Be watchful and not distracted as you approach the house (no looking at your phone, paperwork, etc.) Have your hands free or holding something you can use to keep between you and an aggressive dog.
- Having a hat is a good idea. You can use it to distract an aggressive dog.
- Bring with you a can of pepper spray or small air horn.
- Look for other items in the yard that you could potentially pick and hold between you and an approaching dog.

During an encounter

- If you DO encounter a dog, stay calm. Do not react with emotion. Do not attempt to pet any dog you may encounter. Evaluate the dog's body language to determine how aggressive it may be.
- A wagging tail does NOT mean a dog is friendly.
- Don't run!
- Face the dog and continue to look at the dog and be ready for a charge.
- Using your outside voice, order the dog to stop, sit or stay.
- Look, feel and sound confident. This relaxes you and makes the dog unsure.
- If the dog's owner is present tell them, "I need you to put your dog away! I need you to control your dog now!"
- If you brought a hat, take it off and wave it in front of the dog if it is charging you or threatening to bite you.
- If there is a charge, use your hat to wave in front of the dog and break his charge, or some other item that is readily available.
- If there is no immediate charge, begin to walk backward along your escape route out of the yard while continuing to face the dog. Make sure you don't trip on anything.
- If you have an air horn, use it while you back out of the situation. An air horn can be as effective as pepper spray

Site Safety-Dog Encounters, *Continued on Page 7*

Site Safety-Dog Encounters, *Continued from Page 6*

in giving you enough time to escape.

Using pepper spray

- Spray dogs that are behaving aggressively but have not yet bitten you. That is, they are circling you or standing still and barking/growling/threatening.
- Start spraying as soon as the dog starts coming at you.
- Continue to walk backward and give verbal commands to the dog. Down, sit, stay.

Striking to stop an active attack

- You can strike a dog that is actively attacking you
- Strike the dog anywhere along the spine, from the back of the neck to the hind quarters. This can break down the dog's will and confidence
- Deliver an uppercut with your fist or knee to the dog's throat if he is biting you or an object you are holding.
- Deliver a kick to the chest or under the jaw. The danger here is if you miss or lose your footing the dog can gain an advantage.
- If there is more than one dog, focus only on the leader, which is typically the dog being the most aggressive

Note: no MOWA members were harmed during Hector's presentation.

Don't land apply business holding tank, trap, oil-water separator waste

By the MPCA

The MPCA gets many calls and e-mails asking which, where, and when liquid and solid wastes can be land-applied without a permit from the state. While most haulers are familiar with the requirements, some may not realize that waste from drains, traps, holding tanks, and oil-water separators at businesses are not considered septage and may not be land applied in Minnesota without being first tested and meeting certain conditions, even if the hauler owns the application land. For example, car wash and vehicle maintenance shop trap waste fall into the category of hazardous wastes and cannot go with septage to land application unless properly tested with test results showing they meet standards for land application.

These conditions apply to any volume of waste. The MPCA has published an explanation of the testing and land application conditions for trap and holding tank wastes in an MPCA fact sheet (or Google MPCA trap fact sheet).

Wastes that do not meet the conditions discussed in the fact sheet would be subject to a land application State Disposal System Permit from the MPCA. Contact your local MPCA staff if you have questions about land application of liquid or solid wastes by calling 651-296-6300 or 800-657-3864.

Convention Spotlight - Permitting, *Continued from Page 2*

operating permits are necessary if the pretreatment unit meets all other Type I conditions (three feet of vertical separation, treatment level C loading rates, etc.). While everyone agreed that management is essential to the continued performance of registered treatment products, there was disagreement about the right way to compel system owners to perform necessary management. One participant opined that operating permits, with their higher costs and strict reporting stipulations, can actually discourage the use of pretreatment.

Ideas shared for improving operating permit compliance, reporting requirements

Many shared ideas about ensuring compliance with operating permit stipulations. Some local programs receive more support from their county attorneys. Others have citation authority that is used rarely but effectively. One panel member reminded the group of two types of challenges that may have different causes and solutions. Non-reporting is different than a system performance issue. We have to work together to make sure the right data is collected and reported. Only with that data can we identify and address the causes of poor system performance. Logical contingency planning and corrective action plans meant to identify and address non-performance issues can reduce the fears that cause people to think that not reporting is better than reporting bad results.

Reporting emerged as the group's biggest pet peeve. Some cited strict penalties as being a problem, and others claimed lax enforcement was the culprit. While recordkeeping is nobody's favorite activity, most did recognize the value of collecting operational data over time that can be used to document a system's compliance history. Participants and panel members offered suggestions to minimize unnecessary or redundant reporting requirements and ensure that data and reports are actually used in the compliance management process. The group talked about the challenges and opportunities that renewable operating permits introduce, and they introduced some ideas worth further consideration:

- *A statewide operating permit reporting web application with editable templates*
- *Workshops on writing operating permits*

One panel speaker asked the group, especially local program administrators, to examine how they can be flexible in the administration of their operating permit programs, and consider where each situation falls on the "risk continuum." By developing and applying operating stipulations in a manner that recognizes varying levels of risk, we can build a reputation for being reasonable, which helps everyone understand the purpose and accept the reality of an active management program. Embracing this *active management* mindset and applying more rigorous management and reporting requirements in the situations that pose the highest risk are the best ways to make the case for more demanding oversight.

Less frequent reporting, fewer compliance limits, and lower permit costs could be a reward for systems that mitigate possible risks in other ways. For example – if we are using a Treatment Level A registered product that distributes effluent into three feet of fine textured and unsaturated soil, you shouldn't need to measure or report fecal coliform values.

This panel wrapped up an eventful day that was all about how our industry can answer the perennial question of how to take care of technology. MOWA members hosted and participated in this lively discussion with the shared hopes of improving the outcomes of our operating permit program structures.

MPCA Advises Caution with Design Changes

When changing SSTS designs, proceed with caution

By the MPCA

Local Government Units (LGUs) need to carefully review all SSTS design plans they receive to ensure they are complete, correct, and include local ordinance requirements. Once a design is verified as acceptable, the construction permit for the SSTS can be issued.

The design that is permitted is the design that must be installed, unless something unpredictable happens. When something unexpected does happen, the designer needs to be contacted and made aware of the issues. After the issues have been discussed between the designer, installer and LGU, and the designer makes changes to the design, then the LGU can confirm the change and the installation can follow the new design.

All changes should follow the state code and local ordinance. All design changes need to be signed off or changed by the original designer, whether it is a change in the number of tanks, where the SSTS is going to be placed, or anything in-between.

The installation can proceed once the designer has confirmed any changes. A new design is not required to be on site, but the designer must submit the new design changes for the LGU file. All changes must be signed by the designer next to the areas that were altered. Design changes should be submitted within a reasonable time.

If an LGU makes design changes without confirmation from the designer, the LGU could be held liable as the designer and/or face litigation if the system were to fail.

Talk with designers about issues as they arise. Problems that make a design report unacceptable can happen for a variety of reasons. Sometimes there are specific local requirements that a designer may not be aware of. Other times there may be miscalculations or errors in the design report that need to be corrected.

The most important thing to remember as an LGU is that corrections to designs are changes to designs, and whoever makes the changes then becomes the designer of the system. Also make sure inspectors don't make changes to designs, but only approve changes made by the designer.

Department of Labor/Industry plumbing code changes take effect

By the MPCA

Just a reminder from the Department of Labor and Industry (DLI) that the 2015 Minnesota Plumbing Code changes took effect Jan. 23, 2016.

Of particular interest to SSTS professionals are the changes relating to work associated with building sewers, the pipe that runs from a home to the septic tank. Information about these changes were covered in the August 2015 edition of the SSTS Bulletin.

For future updates about the 2015 Minnesota Plumbing Code, the DLI recommends signing up to receive their CCLD Review newsletter.

Calendar of Events

Industry Events

October 26-29, 2016—NOWRA 2016 Conference at The Nugget Hotel and Casino, Reno, NV (see www.nowra.org)

MPCA Septage Guidelines for Hydrated Lime

Using hydrated lime? Always use chart to correct for temp when reading pH prior to land application

Temperature/pH Correction Table

Temperature °F	Temperature °C	Required Minimum pH Reading	Actual pH
35	1.7	12.7	12.0
36	2.2	12.7	12.0
37	2.8	12.7	12.0
38	3.3	12.7	12.0
39	3.9	12.6	12.0
40	4.4	12.6	12.0
41	5.0	12.6	12.0
42	5.6	12.6	12.0
43	6.1	12.6	12.0
44	6.7	12.6	12.0
45	7.2	12.5	12.0
46	7.8	12.5	12.0
47	8.3	12.5	12.0
48	8.9	12.5	12.0
49	9.4	12.5	12.0
50	10.0	12.5	12.0
51	10.6	12.4	12.0
52	11.1	12.4	12.0
53	11.7	12.4	12.0
54	12.2	12.4	12.0
55	12.8	12.4	12.0
56	13.3	12.4	12.0

By the MPCA

When using hydrated lime in your septic tanker truck, remember the process you need to follow for taking temperature and pH readings prior to land applying the septage.

After adding lime into the truck tank, obtain a small sample of septage for your initial pH reading. This pH reading is required to be at 12.0 or higher. In addition, you need to account for temperature correction for both initial and final pH because the actual pH can vary greatly from the given pH depending on the temperature of the septage. For example, if the pH meter reads 57 degrees Fahrenheit, the pH needs to read 12.3 for it to actually be 12.0.

Use MPCA chart to correct for temperature

The pH meters that state they are temperature corrected are only corrected to the temperature that is shown on the meter, they do not correct according to the chart provided by the MPCA. You can request a temperature correction chart from your regional MPCA staff if you do not already have one. The chart is also available online. Search online using the phrase "umn temperature/ph correction table."

Once you have reached an initial (temperature adjusted) pH value of 12.0 you can begin your required 30 minute holding time between your initial and final pH reading. The final pH should take into account temperature correction to ensure that the pH of the septage is 12.0 or higher for 30 minutes prior to land application.

If an incident occurs where the final (temperature adjusted) pH is less than 12.0 you need to add more lime to the septage and reset the 30 minute holding time. When you have satisfied the 30 minute holding time and your pH is 12.0 or higher you can properly land apply.

Convention Keynote Snapshot, *Continued from Page 1*

Lack of credible leadership can lead to disaster, he said. As an example he talked about the Mann Gulch forest fire in central Montana in 1949. A crew of firefighters was sent in to fight the fire under the command of a new leader, Wag Dodge, whom they had not yet had time to get to know and have confidence in. Dodge quickly realized the fire was out of control and they needed to escape it. He ordered a retreat and at the same time began burning a ring of fire in front of their path and ordered his men to join him inside the escape fire he had created. Many of the men ignored his command and continued to run. “To hell with that, I’m getting out of here,” one crew member reportedly shouted. Dodge and only two others survived out of a crew of 16.

“Our ‘ring of fire’ idea is distributed wastewater systems can be a solution to massive groundwater depletion,” Fritts said. He said getting others to accept that idea requires developing credibility and teaching others that SSTS recharges groundwater and that it is safe and cost-effective. “Only credible leaders can ignite an incredible revolution,” Fritts says.

Fritts spoke as a keynote presenter during the 2016 MOWA (Minnesota Onsite Wastewater Association) conference held in St. Cloud in late January.

Tank Fee Information for Installers from MPCA

Tank reporting clarification: count ALL installed tanks

By the MPCA

At one point during training held for septic system installers in St. Cloud in December, participants were told that when reporting annual SSTS Tank Fee information, only two tanks need to be counted when reporting the number of tanks installed for an advanced treatment system. This was incorrect.

CORRECTION

In accordance with Minn. Stat. 115.551(a) the correct way to report your annual SSTS Tank Fee is to count ALL SSTS tanks that were installed.. The only exception is for performance-based SSTS as outlined in Minn. Stat. 115.551(b). Here is the actual statute language:

115.551 TANK FEE.

- (a) An installer shall pay a fee of $25 for each septic system tank installed in the previous calendar year. By January 30 each year, the installer shall submit to the commissioner a form showing the number of tanks installed in each jurisdiction in the previous calendar year. The commissioner shall invoice the installers with the final fee due. Tank fee payment is due within 30 days of receiving the invoice. The revenue derived from the fee imposed under this section shall be deposited in the environmental fund and is exempt from section 16A.1285
- (b) Notwithstanding paragraph (a), for the purposes of performance-based subsurface sewage treatment systems, the tank fee is limited to $25 per household system installation.
- If you have any questions in regards to reporting your SSTS tank fees please contact Carol Decker at 218-316-33928 or Kristi Kalk at 507-344-5261.

UNIVERSITY OF MINNESOTA
Onsite Sewage Treatment Program

A New Tool to Create Customized Owner's Guides

by Sara Heger, Ph.D., University of Minnesota OSTP

This USDA grant funded project, led by the University of Minnesota (UMN), has developed a tool available at the website H2OandM.com. The owner's guides created using this tool provide users with fundamental information about the operation and management of various wastewater management systems. Think about it – when was the last time you spent $5,000 - $30,000+ for a new gadget around your house and did not get an owner's manual? Although there is a lot of general information out there about do's and don'ts the information is typically not customized to the site and user.

Caption: H2O&M.com welcome and login screen

The tool is a web-interface that allows an individual to produce an expert-driven and locally-customized manual (electronic or hard-copy) CSOG for any single family to cluster soil-based wastewater treatment system in America. A consultant, engineer, septic professional, facilitator, or even an educated community member can use this tool to produce a management plan for either a new or existing onsite wastewater treatment systems (OWTS). The developer of any given CSOG is able to assemble a professionally designed guide by selecting situation-specific boilerplate language and graphics and inserting customized content to integrate system-specific permit and ordinance requirements. Key partnerships in Arizona, Iowa, Michigan, Minnesota, and North Carolina, along with the US EPA, were utilized to assure this project delivers a nationally relevant and locally customizable tool to facilitate the development of Community System Owner's Guides.

This tool will work for a community scale project or a single family home. The final customized product takes the form a PDF that is smartphone/tablet compatible, ready for professional printing.

Each Community System Owner's Guide is customized to the local site, system, and regulatory requirements and identifies the following key aspects:

1. The specific treatment train components and how they work, in addition to the service activities and frequencies.
2. The management issues, challenges, and operations plan each system has identified and implemented to ensure long-term, effective wastewater treatment.
3. The operational responsibilities each system user must accept to protect the infrastructure from premature failure.

A septic system professional creates an account where all their projects are stored. This tool and the manual has many benefits to professionals in the septic system industry:

- ☐ Value added information to customer
- ☐ Professional/third party recommendations on O&M activities and home management tips
- ☐ Ability to update the O&M manuals as the system or user changes
- ☐ Capability to create templates for commonly design, installed or serviced systems

Tool users including septic professionals, community leaders, regulators, or assistance organization representatives. These users are able to update the manual with changes in management details such as rate structure, number of connections, additional treatment train components, etc. These updates or changes can only be made by the developer of the original guide.

H_2O & M Owners' Guide, *Continued on Page 13*

H_2O & M Owners' Guide, *Continued from Page 12*

Using the web interface the user starts by creating an account. Once an account is created the user will come to their homepage were they can search to see if an O&M manual exists for a given property, open up an existing project, create a new project or manage their image library.

Once an account is created the user will come to their homepage were they can search to see if an O&M manual exists for a given property, open up an existing project, create a new project or manage their image library. Projects can also be reordered, edited or deleted by going under the user's account. Using the web interface the user enters specific site and system information and the tool creates an electronic or hard copy O&M manual which includes stock image and text along with the customized information entered by the professional. The tool walks the user through a system starting with the interior plumbing, then followed by the collection system, tanks, advanced treatment and soil treatment and dispersal.

The project team envisions the ability for interested parties to learn a great deal about the status of systems and their management across the country through a back-end analysis of the customized data entered for the development of each CSOG. Any analysis of this type is not part of this project, but from the database perspective, all private information such as names, addresses and phone numbers will be kept private. When the guides are provided to the public the developers of the tool must consider that some of the information may become public.

Free Online Training

On March 31 and April 13th, online training sessions will teach professionals how to use this new tool with a live demonstration. The training will be held from 1-3 p.m. Central Time.
Register for March 31st at http://bit.ly/1Qaq9Uc
Register for April 13th at http://bit.ly/24pbQou

MOWA Welcomes New Members!

Advanced Property Inspections
New London, MN
Justin Ziemer

Aquafix, Inc.
Madison, WI
Kevin Ripp

C.K. Excavating
Lake Elmo, MN
Chris Klein

Hansen Plumbing Heating & Air
Becker, MN
Warren Hansen

Hoot Systems, LLC
Lake Charles, LA
Ronald Suchecki

Point Watch Systems
Milaca, MN
Eric Larson

UNIVERSITY OF MINNESOTA
Onsite Sewage Treatment Program

UMN Release MnDOT Rest Stop Reports

by Sara Heger, Ph.D., University of Minnesota OSTP

The University of Minnesota (UMN) and the Minnesota Department of Transportation (MnDOT) performed a unique evaluation of the 52 existing subsurface sewage treatment systems (SSTS) at safety rest areas (SRA) travel information centers (TIC), truck stations (TS) and weigh scales (WS) at MnDOT facilities across Minnesota. This three-year partnership brought together the septic expertise of the UMN with the MnDOT wastewater unit's agency and site knowledge. The goal of the assessments was to evaluate risk and provide a risk analysis ranking system. The project began with an extensive record search where many documents were digitized and a database of information created. The next step was development of a draft assessment protocol. This draft protocol was pilot tested on five systems and refined based on those experiences. The full assessment included a preliminary review of the site, a facility assessment, effluent sampling, septic tank inspections, evaluation of advanced treatment units when present, and an assessment of the soil treatment system. The information from the assessment was used to develop a risk ranking of all systems. This project and process is one that could be modified to evaluate facilities in other states or owned by other entities. Throughout the course of the investigation data was collected on over a 100 characteristics of the SSTS at each of the 52 facilities. Generally, the individual characteristics investigated fell into certain categories or high-level groups. These general categories are:

1. Facility Types and Flows
2. Septic Tanks and Filters
3. Environmental Conditions
4. Soil Treatment Systems
5. Management Methodologies

While the number of parameters that could be analyzed is extensive, this report focuses on those that were determined to have the greatest influence on risk. For each characteristic, a value was given on a scale of 1 to 5 with 1 being the highest or most risk and 5 being the lowest or smallest risk. This 1 to 5 ranking scale was purposefully selected to conform to the State of Minnesota Facility Condition Assessment process (FCA). To overcome the limitation of a 1 to 5 system, a case-based reasoning process was used to further classify characteristics into Low, Medium or High risk to relate overall impact of concern over time. Overall, 45 of the 52 wastewater systems evaluated were in average to above average condition. Five facilities were found to be excellent

with a score of 5. Fourteen were found to be above average with some areas for improvement with a score 4. Twenty-six systems scored 3 or average. The remaining seven are most in need of repairs and/or replacement with a 2 or <70% of an ideal system score. In addition, all systems with public safety and health issues are viewed to be below average until these issues are rectified. The risk assessment created can be used for planning purposes to prioritize capital upgrades, but only if a sustainable process is created and incorporated into the day-to-day workload. A fact-based, rational, transparent, reproducible and systematic level of service needs to be identified. This risk analysis must be performed periodically to document changes in the system.

Included in the appendix of the report is much of the data collected. Of the 52 systems evaluated, 29 of the systems evaluated are rest stops/travel information centers. The others sites are weigh scales and truck stations that receive VERY little flow and are not public restrooms. One example of the data contained in the report relates to waste strength. When evaluating the 29 systems with public restrooms:

Rest Stop Study, *Continued on Page 15*

Rest Stop Study, *Continued from Page 14*

1. 15 had high strength waste for BOD/TSS even though 22 of them had septic tank capacity greater than current code requirements and all but 1 was above design flows while the rest were under 70%. For the remaining 7 that were below domestic strength levels, 5 had pretreatment beyond a septic tank.
2. 25 had nitrogen levels greater than 60 or 120 mg/L

In addition a water use study was done at six rest areas including Culkin Rest Area (R.A.), Frazee R.A., Fuller Lake R.A., Lake Pepin R.A., Central Minnesota Travel Information Center (TIC), and St. Croix TIC, were included in the study, with each site belonging to one of two building categories, interstate or non-interstate. Two study periods were held, including two popular holiday travel weekends, Memorial Day weekend and Independence Day weekend, allowing for some insight into peak usages. Water use estimations were obtained electronically by calculating averages from hourly people counts, hourly water-flow data and hourly traffic counts. All sites in this study had low flow fixtures and a similar water use average compared to the averages of water conserving devices in the 1979 analysis. Site specific average water use per person ranged from 0.7 gallons to 3.8 gallons. The overall average water use per person was 2.3 gallons. A statistically significant difference was found between the two building types, interstate and non-interstate, with interstate visitors averaging 3.2 ± 0.3 gallons and non-interstate visitors averaging 1.8 ± 0.2 gallons. The difference between building types was not explainable. The 3.5 gallons per person per day volume represents a 95% confidence level. When accounting for variation and error and providing a safety factor, a water use per person of 5 gallons per person per day is recommended for a water consumption design value.

2016 OSTP Certification Course Descriptions and Offerings

University of Minnesota
Onsite Sewage Treatment Program

Introduction to Onsite Systems (15 Direct Credits)
Fee: $360 Exam: Yes
This 15-hour workshop is the foundation for all SSTS certifi cation 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
- Wastewater characterisitcs
- Site evaluation
- Soil treatment systems

10-2 Grand Rapids - Sawmill Inn 3/21-23/16 Deadline: 3/14/16
10-3 St. Cloud - Moose Lodge 11/14-16/16 Deadline: 11/7/16

Installing Onsite Systems (12 Direct Credits)
Fee: $265 Exam: Yes
This 12-hour workshop prepares attendees for the Installer exam and provides information about proper installation practices.

PREREQUISITE: Introduction to Onsite Systems

Topics include:
- Construction planning
- Construction practices
- Tools for installing
- Pipelayer certification

112-2 Grand Rapids - Sawmill Inn 3/24-25/16 Deadline: 3/17/16
112-3 St. Cloud - Moose Lodge 11/17-18/16 Deadline: 11/10/16

Basic Design of Onsite Systems (21 Direct Credits)
Fee: $440 Exam: Yes
This 21-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
- System design
- Tank design
- Pumps and pressure design

20-2 St. Cloud - Moose Lodge 5/3-6/16 Deadline: 4/26/16

Intermediate Design & Inspection of Onsite Systems
(21 Direct Credits) Fee: $440 Exam: Yes
This 21-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
- Flow equalization
- Media filter applications
- Soil treatment design reductions

27-1 St. Cloud - Moose Lodge 4/11-14/16 Deadline: 4/4/16

Advanced Design & Inspection of Onsite Systems
(21 Direct Credits) Fee: $440 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 participants 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
- Groundwater mounding
- Nitrogen & phosphorus removal
- High strength waste

29-1 St. Cloud - Moose Lodge 6/7-10/16 Deadline: 5/31/16

Inspecting Onsite Systems (12 Direct Credits)
Fee: $265 Exam: Yes
This 12-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
- Existing system inspection
- New system inspection
- Tools and procedures

30-1 Alexandria - Douglas County Public Works Building 6/14-15/16 Deadline: 6/7/16

Maintaining Onsite Systems (15 Direct Credits)
Fee: $310 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
- Maintaining Type I SSTS
- Record keeping
- Soil survey use

415-1 St. Cloud - Moose Lodge 4/5-7/16 Deadline: 3/29/16

Service Provider (21 Direct Credits)
Fee: $490 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 systems
- Cluster systems
- Type IV systems
- System troubleshooting

49-1 N. Mankato - Best Western 4/26-29/16 Deadline: 4/19/16

Soils (15 Direct Credits)
Fee: $310 or $475 with Munsell Color Guide Exam: Yes
This 15-hour workshop prepares attendees for the Soils exam and provides participants with a detailed understanding of howare particular soils affect the treatment of sewage. Participants will also receive instruction at a field location. Munsell Color Guides available for $165 and Sand Cards for $10.

PREREQUISITE: Introduction to Onsite Systems

Topics include:
- Percolation testing
- Field evaluations
- Soil characteristics
- Soil survey use

515-1 Grand Rapids - Sawmill Inn 5/24-26/16 Deadline: 5/17/16
515-2 Farmington - Dakota County Extension Office 6/22-24/16 Deadline: 6/15/16

Enroll online at: septic.umn.edu
Classes are filled on a first-come, first-served basis.
OSTP, 173 McNeal Hall, 1985 Buford Ave., St Paul, MN 55108
Fax: 612-624-6434 **Phone: 800-322-8642**

2016 OSTP *Continuing Education* Course Descriptions and Offerings

Installer Continuing Education (12 Direct Credits)
Fee: $265 Exam: No
This 12-hour workshop will meet the continuing education requirements for any certification but is specifically tailored for Installers. All information will be provided from the perspective of a system installer.

Topics Include:

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

69-2	N. Mankato - Best Western	4/19-20/16	Deadline: 4/12/16
69-3	Grand Rapids - Sawmill Inn	11/ 29-30 /16	Deadline: 11/21/16

Pipelayer Certification (2 Direct Credits, 1 Related Credit)
Course begins at 1:00PM Exam: Yes
Fee: $75 or $50 as add-on to enrollment in Installer CE
This 3-hour workshop is once again offered this year to accommodate a change in the Minnesota Plumbing Code that requires all septic system installers be either certified pipelayers, licensed plumbers, or registered apprentices in order to install sewer or water service pipes outside of a building in Minnesota.

Topics include:

- MN Plumbing Code
- Pipelaying
- Code compliance bond packet instruction

92-2	N. Mankato - Best Western	4/20/16	Deadline: 4/13/16
92-3	Grand Rapids - Sawmill Inn	11/30/16	Deadline: 11/22/16

Field Troubleshooting Systems Continuing Education
(6 Direct Credits) Fee: $240 Exam: No
This 6-hour workshop combines a classroom and field component to give all septic professionals additional knowledge about troubleshooting systems that are experiencing problems.

Topics include:

- Homeowner use issues
- Hydraulic and organic overload
- Afternoon Field visit
- Evaluating soil treatment systems

64-1	St. Cloud - Moose Lodge	6/28/16	Deadline: 6/21/16

Enroll online: septic.umn.edu

General Continuing Education (12 Direct Credits)
Fee: $265 Exam: No
This 12-hour workshop is designed to meet the continuing education requirement for SSTS professional registration. The topics will be varied to give a wide range of information for SSTS professionals.

Topics include:

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

60-2	Detroit Lakes - Holiday Inn	3/31-4/1/16	Deadline: 3/24/16
60-3	N. Mankato - Best Western	11/2-3/16	Deadline:10/26/16
60-4	Cloquet Forestry Center	12/7-8/16	Deadline: 11/30/16

Maintainer Continuing Education (12 Direct Credits)
Fee: $265 Exam: No
This 12-hour workshop is specifically designed as continuing education for those involved in maintaining septic systems.

Topics include:

- 503 regulations
- Troubleshooting
- System care
- Other establishments

46-1	Grand Rapids - Sawmill Inn	3/29-30/16	Deadline: 3/22/16

Soils Continuing Education (6 Soils-Specific Direct Credits)
Fee: $240 or $405 with Munsell Color Guide Exam: No
This 6-hour course couples classroom and field training to meet soils-specific MPCA continuing educational requirements for designers and inspectors. Munsell Color Guides are available for $165 and Sand Cards for $10.

Topics include:

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

55-1	Farmington - Dakota County Extension Office	5/17/16	Deadline: 5/10/16
55-2	Pipestone MN West College	6/1/16	Deadline: 5/24/16
55-3	Willmar Conference Center	6/30/16	Deadline: 6/23/16
55-4	St. Cloud - Moose Lodge	7/12/16	Deadline: 7/5/16
55-5	Detroit Lakes - Holiday Inn	7/26/16	Deadline: 7/19/16
55-6	Cloquet Forestry Center	8/16/16	Deadline: 8/9/16
55-7	Rochester South - Clarion Inn	9/20/16	Deadline: 9/13/16

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MOWA convention keynote speaker says SSTS can help recharge nation's declining groundwater aquifers

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Heads Up on Legislative Session: Transportation & Taxes

(excerpt from Sen. Matt Schmit's Newsletter)

"As children, we're taught we cannot have everything we want. As adults, we tend toward a mature appreciation for the tradeoffs that exist in everyday life. After all, we can skip exercise or forego a healthy diet—but we can't expect to do both and keep our weight down or our cholesterol in check. More of one thing often results in less of another. That basic lesson of tradeoffs seems to be lacking when we consider discussions of taxes and transportation finance waging in anticipation of the 2016 legislative session. We can tap our state budget surplus for transportation or we can pursue significant tax cuts—<u>but we can't do either to extreme or both in tandem without seriously damaging our state budget health</u>. Experts contend Minnesota underfunds its transportation system by as much as $1 billion annually... " **Stay tuned to the session and let your legislator know how you feel about this issue and others that affect the onsite wastewater industry**!

2016 MOWA MEMBERSHIP APPLICATION

MOWA minnesota onsite wastewater association

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 2016

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

Aitkin....1
Anoka....2
Becker....3
Beltrami....4
Benton....5
Big Stone....6
Blue Earth....7
Brown....8
Carlton....9
Carver....10
Cass....11
Chippewa....12
Chisago....13
Clay....14
Clearwater....15
Cook....16
Cottonwood....17
Crow Wing....18
Dakota....19
Dodge....20
Douglas....21
Faribault....22
Fillmore....23
Freeborn....24
Goodhue....25
Grant....26
Hennepin....27
Houston....28
Hubbard....29
Isanti....30
Itasca....31
Jackson....32
Kanabec....33
Kandiyohi....34
Kittson....35
Koochiching....36
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Lake....38
Lake of the Woods....39
Le Sueur....40
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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: _____ Expiration Date: _____ Cardholder Name: _____

Signature: _____ Date_____

MOWA, 5200 Willson Road, Suite 310, Edina, MN 55424 Phone: 952.345.1141 e-Fax: 952.516.5550

Note: Dues payable to MOWA are not deductible as a charitable contribution but may be deductible as an ordinary and necessary business expense.

MOWA
minnesota onsite wastewater association

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