MOWA minnesota onsite wastewater association

THE LITTLE DIGGER

June / July 2015 - Vol. 30, Issue 3

A bi-monthly publication

SSTS exam piloting group continues to take off; arriving at better questions, answers

The MPCA has been hosting monthly SSTS exam piloting sessions since July, 2014. In May, the group celebrated the completion of piloting for the Design exam, leaving four of the SSTS program's nine exams updated and improved.

More than 20 different volunteers have attended these sessions, where they review and provide feedback on potential exam questions. Participants report exam question discussions as being "interesting," "helpful," and "skill-sharpening."

Based on these discussions, some questions and options are tossed out and completely rewritten, while most are edited to improve accuracy and comprehension. Of the 280 exam questions that have been piloted, 183 (65%) were changed to improve their effectiveness, thanks to the work of the group.

Exam piloting is one of the final steps in the "Need-to-Know" process that MPCA staff are using to align specific job tasks with curriculum topics and exam questions. For information on how to participate in this process, contact Nick Haig at nick.haig@state.mn.us or by phone, 615-757-2536.

In this Little Digger

Working with Type III Systems

By Pete Otterness, Sanitarian – Senior, Environmental Services Department, Nicollet County, and MOWA Board of Directors

"All the easy systems are done." I have heard this from many contractors. Now after seven years of hearing this, I believe them.

Many sites today are on system two or three. Trying to find space, adequate soils, meeting setbacks, all lead up to more and more type III systems. This spring has been plagued with them. Maybe the 2015 MOWA winter conference was a premonition to this. Many of you may recall that there were many hours devoted on how others have worked with difficult situations and some science behind solutions for difficult scenarios both in Minnesota and in other parts of the US at the conference.

Working with Type III Systems, *Continued on Page 13*

REGISTER NOW! SUMMER SEMINAR SET FOR AUGUST 19TH IN CHASKA

2015 Summer Seminar - Wednesday, August 19th!

Minnesota Onsite Wastewater Association, in association with the University of Minnesota Onsite Program and Landscape Arboretum, the Minnesota Department of Health, and the Minnesota Pollution Control Agency, is pleased to announce the 2015 Summer Seminar: Wednesday, August 19, 2015

Registration from 7:30 to 8:30 am

◆Minnesota Landscape Arboretum◆

3675 Arboretum Drive ◆ Chaska

(952) 443-1400 ◆ http://www.arboretum.umn.edu

A pilot demonstration is being installed to evaluate the viability and benefits of recharging a local watershed and reuse of water in the form of wastewater. Wastewater from the University of Minnesota Landscape Arboretum facility will be extracted from the sewer main upstream from its connection with the City of Chanhassen municipal sewer system. A portion of the wastewater will be diverted into a series of septic tanks followed by a pretreatment unit with final dispersal through a drip irrigation system. The wastewater will provide irrigation to plants/landscaping designed and constructed by the arboretum.

MOWA's 2015 Summer Seminar offers the opportunity for septic system and groundwater professionals to gain "hands-on" experience, earn continuing education credits, and network with other professionals. The day will end with a fun boating event, sponsored by Petersen Supply, and open to Summer Seminar attendees and their guests!

Track 1 –Reuse and Recharge Pilot Project Design, Installation, and Permitting

6.0 General CEUs*

8:30 – 8:35	MOWA Welcome
8:35 – 9:00	Welcome to the Arboretum
9:00 – 9:35	Groundwater in MN
9:35 – 10:00	Onsite treatment & recharge systems
10:00 – 10:40	Project design criteria and goals
10:40 – 11:00	Break
11:00 – 11:50	Concurring construction stations (4): 1. Design, maintenance, and permitting 2. Tank installation and directional boring 3. Advanced treatment and control panel 4. Drip dispersal
11:50 – 1:00	Lunch
1:00 – 1:50	Concurring stations (see above)
1:50 – 2:40	Concurring stations (see above)
2:40 – 3:00	Break
3:00 – 3:50	Concurring stations (see above)

Track 2 – Soils

6.0 Soils CEUs*

8:00 – 12:00	Classroom Session: Soils in the region: including geology, parent material, and soils common to the area; status of local soil surveys; known problem soils and solutions
12:00 – 1:00	Lunch
1:00 – 4:30	Field Session: Includes soil pits with a field review of geology, water movement, redoximorphic features, and soil texturing

5:30 – 8:30 Social Event Sponsored by Petersen Supply (open to attendees & their guests)

Schedule subject to change; CEUs listed are anticipated, based on MPCA approval

Please visit our Web site for updated information: www.mowa-mn.com or call 1-888-810-4178

2015 Summer Seminar Registration

Minnesota Onsite Wastewater Association

2015 SummerSeminar - Chaska, MN

In association with the University of Minnesota & MPCA
(visit our Web site updates @ www.mowa-mn.com)

REGISTRATION FORM
One form per person. Please copy for additional registrants

Mail: MOWA
5200 Willson Rd.
Suite 310
Edina, MN 55424
e-fax: 952.516.5550
e-mail: mowacarla@aol.com

Name: _____ Organization: _____

Address: _____

Phone: _____ Fax: _____ Email: _____

Wednesday, August 19, 2015

Minnesota Landscape Arboretum

3675 Arboretum Drive ◆ Chaska, MN 55318 ◆ (952) 443-1400 ◆ http://www.arboretum.umn.edu

Track 1: Design, Installation, and Permitting (Drip System) – AM: Classroom / PM: Concurring
Designed to provide 6.0 hours of (Non-Soils) Training

Track 2: Soils Training – AM: Classroom Session / PM: Field Session
Designed to meet the additional 6.0 hours of Direct Soils Training required for Certified Inspectors & Designers

5:30 – 8:30 – Boat Event Sponsored by Petersen Supply – Open to Attendees and Their Guests

*Schedule subject to change; CEUs are anticipated, based on MPCA approval

I WILL ATTEND (Please Check One)	MOWA MEMBER	NON-MEMBER**	
_____ Track One: Design – OR – _____ Track Two: Soils	$125	$195	$_____
_____# Daytime Guest(s) x $50 each (breakfast/lunch/breaks – no CEUs)			$_____
_____# Attendees/Guest(s) x $10 per person for Evening Boating Event (limited space – first come, first-served)			$_____
Registration Deadline: August 10, 2015 - Late Fee ($25 after 08/10/15)			$_____

PAYMENT: **TOTAL COST** $ _____

Includes course materials, breakfast, lunch and afternoon snack.
**For information on becoming a MOWA member, please visit: www-mowa-mn.com

A.____Please charge my credit card in the amount of $_____

B._____A check in the amount of $_____ is enclosed (payable to MOWA)

Circle one: Visa Mastercard

Name on card_____ **Signature** _____

Account number_____ **Exp. Date** _____

I agree to indemnify and hold harmless Minnesota Onsite Wastewater Association (MOWA) and the Minnesota Landscape Arboretum from any and all liability, loss, damage or expense from any incident that may arise while attending any portion of the 2015 Summer Soils Seminar. I authorize any photos taken of me at this event to be published in MOWA's Little Digger and/or other MOWA-related promotional materials.

Signature: _____ Date: _____

From the Executive Director's Office

By Pat Martyn, MOWA Executive Director

At the Minnesota Landscape Arboretum for the August Summer Seminar!

The 2015 Summer Seminar has been announced and we are very excited about it!! It will be held August 19, 2015 at the Minnesota Landscape Arboretum in Chaska, Minnesota. There will be Soils Training, and then the installation of a reclaimed water drip irrigation system. We hope to have some sponsorships that will allow you to see some vendor goods, and as always, the networking and conversation to cover all the bases. We also have to give a shout out to Petersen Products who will sponsor the after event.

This year's program is being spearheaded by Craig Gilbertson and others who have spent much of their time planning and organizing the event. University of Minnesota teachers and scientists will be on site to deliver their usually excellent programs. You will find a registration in this Little Digger, and you can get it to us a variety of ways. This is a great day that has been witnessed by the hundreds that have attended over the last few years. So come and see new info, maybe take care of some continuing education requirements, and see some friends!

We will be in Saint Cloud for the 2016 Convention and EXPO!

We are looking forward to the 2016 Convention in Saint Cloud MN at their Convention Center. There are several hotels attached and nearby. Please mark your calendar: January 26-28, 2016.

We are very proud of our show, which we think is one of the best in the country. It is the time that we appreciate any ideas as to how we can make the show even better, so please let us know if you have ideas for topics you like us to cover or any comments you may have. If you would like to work on the Convention Committee let us know as we always are looking for extra ideas and help.

You will remember that in the last couple of years we paid increased attention to the public forum presentations, and they have been rated so highly we will be continuing them this year.

Calendar of Events

MOWA Events

August 19, 2015 – Summer Seminar—Minnesota Landscape Arboretum – Chaska, MN (visit www.mowa-mn.com for details)

Industry Events

November 3-6, 2015— NOWRA-VOWRA-SORA-NAWT to Hold Joint Onsite Mega-Conference, in Virginia Beach Virginia - NOWRA is partnering with the Virginia Onsite Wastewater Recycling Association, the State Onsite Regulators Alliance, and the National Association of Wastewater Technicians to host a major industry conference at the Virginia Beach Convention Center this fall. It will serve as the annual meetings for NOWRA, VOWRA and SORA and the Annual Treatment Symposium for NAWT. This will be a must attend event. Watch www.nowra.org for more information. http://071812c.membershipsoftware.org/Files/Conferences/2015Annual/WWETT%20Promotional%20Flyer.pdf

MOWA
2015 BOARD OF DIRECTORS

Understanding Code for Non-Residential SSTS

The Other Ones: *Septic Systems Serving Non-Dwellings*

By Nick Haig, MPCA Program Administrator, Certification & Training Unit - MOWA Board of Directors

The focus of Minnesota's septic system program in the 1970's was to identify technical standards for systems that treated sewage from dwellings. At that time, not much thought was given to the treatment challenges of waste generated by structures other than dwellings, which were creatively referred to in rule as "other establishments". This led to an era of frequent premature system failures, especially for the facilities like restaurants that produced the highest strength waste. Requirements changed as the industry learned from its experiences, and we began specifying more specific standards for systems that treat high strength waste. While we see pretreatment devices on most restaurants today, we have not adequately answered the question of how to ensure effective treatment for the other establishments with waste strength greater than dwellings but less than the obviously high strength waste from restaurants.

Local program data suggests that we continue to struggle with identifying the proper wastewater treatment solutions for other establishments. Local programs have reported over 8,500 non-residential establishments being served by septic systems in Minnesota. Of the 626 of these systems that were constructed in 2013 and 2014, over one-half were designed as Type I systems, about one-third were designed as holding tanks, only 5% were identified as Type III, and even fewer used pretreatment (Type IV).

What is troubling with these numbers is that other establishments are the most likely wastewater sources to produce sewage that exceeds residential strength, and septic systems that treat high strength sewage need to have additional treatment to compensate for this difference. The right questions about waste strength need to be asked when designing or reviewing systems for other establishments. Septic systems that serve complex waste streams need extra attention to ensure they provide long-term and cost effective treatment. We have all learned that the relationship between hydraulic loading and organic strength is fundamental to effective wastewater treatment. The question is, then, how we end up with less than 10% of the systems serving other establishments using Type III or Type IV solutions.

The MPCA wants to understand the ramifications of solving the treatment needs of 90% of other establishments with Type I or Type II solutions. One concern is that Type I systems can quickly become overloaded by high strength waste and result in premature failure and increased risks of unsanitary conditions. Another concern is that holding tanks may not best serve the owner's needs because of the continued costs of pumping and hauling the waste. The MPCA does not want to overregulate the issue, but it should clearly define why other establishments are different and set reasonable expectations for how their wastewater treatment needs are met. As a regulating agency, it has become apparent that we haven't provided adequate guidance to design professionals and local authorities. The information needed to appropriately assess, design, permit, and manage these systems hasn't been defined. We are committed to doing better, and want the industry's help to evaluate and adjust the program to better serve the sewage treatment needs of other establishment owners.

What the code says

Minnesota Rules Chapters 7080 - 7083 are very clear about the fact that other establishments are different than dwellings (7081.0020 Subp. 5). The rules are also very pointed about the limitations of flow-derived design calculations (7080.2150 Subp. 3, Item K), and the need to provide additional treatment for systems serving sources that produce waste that is stronger than residential strength (7080.1550 Subp. 2, Item B). The first step in designing any septic system in Minnesota is to determine the design flow and anticipated waste strength concentrations (7080.1710 Item A).

What the code doesn't say

If the code tells us that other establishments are different and waste strength must be addressed in every design, what is the problem? The code doesn't tell us **how** to anticipate the waste strength or **what to do** when we expect waste strength to exceed residential strength waste. The code also does not explicitly state that all other establishments produce waste strength that exceeds residential values. These ambiguities have resulted in confusion about the correct way to assess, design, permit, and manage systems serving other establishments. Research and experience does suggest that we need to pay special attention to other establishments, and it is safest to assume that all other establishment sewage exceeds residential strength values. But, what is "additional treatment" and how does this play into the design equation? Does additional treatment mean the use of a registered treatment device, or can a Type I system be modified (becoming a Type III) to do the job? Forms of additional treatment that are not pretreatment could include specifying extra tank capacity, grease traps, effluent screens, pressure distribution, larger soil dispersal systems, flow equalization, flow-splitting, more frequent maintenance, and other methods.

Other Systems, *Continued on Page 7*

Other Systems, *Continued from Page 6*

Who can do what?

Another factor comes into play when we ask which specialty area (basic, intermediate, or advanced) is required to design and inspect systems serving other establishments. The SSTS program wasn't built around the types of structures the systems serve – it was built around the sewage that needs to be treated and the system types that perform the treatment. Basic designers and inspectors are authorized under *7083.0740/0750 Subps. 1* to design, permit and inspect Types I, II, or III SSTS serving dwellings or other establishments. Intermediate or Advanced certification is currently required when the system uses pretreatment. Appropriately matching a treatment solution to a complex waste stream is complicated, and proper certification is necessary. In fact, it was one of the reasons that the advanced design and inspection certifications were introduced in the first place. The MPCA, working with the Implementation and Enforcement Task Force and the SSTS Advisory Committee, revisited its policy with regard to what professionals are allowed to work with high strength waste in systems under 2500 gpd. The determination was made that professionals with intermediate certification are qualified to work with these systems. The Agency is developing further guidance regarding waste strength and reviewing whether additional training will be provided for professionals working with other establishments.

What should we do?

We currently lack substantive guidance to inform decision-making at the design, permitting, and compliance management levels. We need to define the protocol for "anticipating effluent concentrations" and we have to answer the question of what constitutes "additional treatment". The industry needs to know how to identify and what to do when they discover a source that produces non-residential waste strength. The MPCA and University of Minnesota need to outline how this new guidance will be incorporated into the certification training for new professionals and develop a plan for training existing professionals about the expectations of working with other establishments.

The MPCA wants to collaborate with the industry to answer these questions so we can implement clear expectations that serve the property owners as well as the design and permitting community. Look forward for design guidance **recommendations** this summer and consider working with the MPCA over the next couple of years to help shape the forthcoming blend of requirements and best practices for working with other establishments. Please contact Nick Haig at nick.haig@state.mn.us if you are interested in sharing your data, experience, or expertise in designing, permitting, or managing the compliance of septic systems serving other establishments.

LGU Reporting on SSTS programs needed

Total number of estimated SSTS down slightly; reporting issues still linger

SSTS dwelling and other establishment information	Number reported in 2014*
Full time dwellings with SSTS	433,411
Seasonal dwellings with SSTS	88,693
Cluster SSTS	798
Dwellings served by cluster SSTS	7,601
Other establishments served by SSTS	8,676
Total number of SSTS reported for 2014 (includes dwelligns on cluster systems)	**531,821**

A total of 531,821 SSTSs were reported by 236 local governments in 2014. The number of SSTSs reported in 2014 is lower than the 533,924 reported in 2013 due, in part, to a lack of reporting by some local governments.

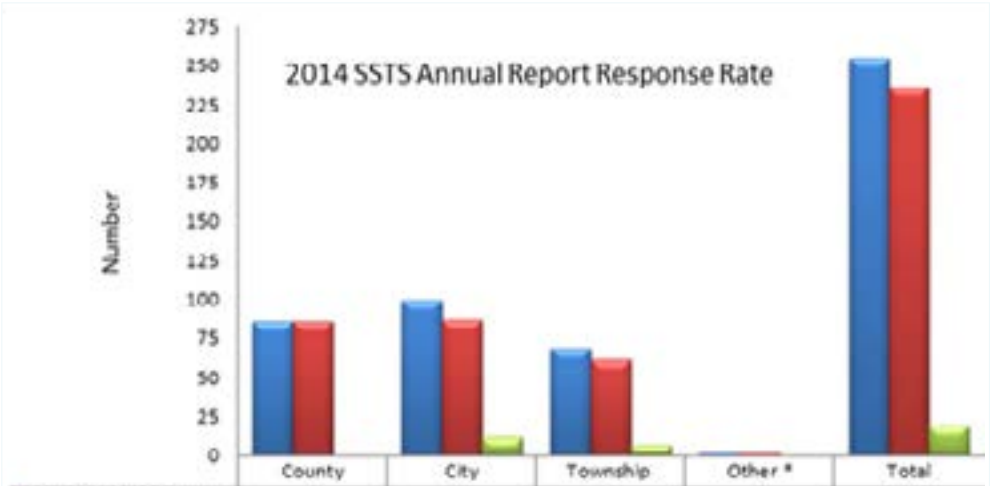
In 2014 there were only 19 local governments with SSTS programs out of 255 that did not respond to the MPCA's request for yearly SSTS information about their program. That's an improvement from 2013 when the number was 27; however, even among those that do respond to the request for annual information, a few do not answer the question asking for an estimate of the total number of SSTS within their jurisdiction.

"We will continue to strive for more complete reporting and appreciate very much the effort local programs put into responding to our request for information each year," says the MPCA's Aaron Jensen.

"This information is very useful in helping to measure progress in our goal of identifying all of the SSTS in the state and making sure they are protective of human health and the environment."

Out of the 531,821 SSTS reported, 433,411 were full time dwellings and 88,693 seasonal dwellings. The number of other establishments reported was 8,676. There were 798 cluster systems; the number of dwellings served by cluster systems was 7,601.

Although the number of septic systems reported remains under-reported and not complete for the state of Minnesota (see chart below), the estimates reported by 236 local SSTS program staff represents the best available yearly data on the number and condition of septic systems in use in Minnesota.



	County	City	Township	Other *	Total
Number Contacted	86	99	68	2	255
Number Reported	86	87	61	2	236
Number Not Reporting	0	12	7	0	19

** Number reported as of April 24, 2015 (includes all counties except Ramsey County). Non-reporting entities included 12 cities and seven townships. Data based on 236 submitted annual reports for 2014.*
** Other entities include Ottertail Water Management District and the Bemidji Joint Powers Board.*

The **LITTLE DIGGER** is a bi-monthly publication of the Minnesota Onsite Wastewater Association.
Editor: Carla Tourin E-mail: MOWAcarla@aol.com The articles printed in the publication do not necessarily reflect the opinion of this organization. Readers are encouraged to respond to the articles with their own points-of-view. We welcome industry-related comments or articles. Information or 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

MPCA News, Information and Offers!

New method in place for reporting SSTS tank installations

Beginning in 2016, there will be a new method used for septic tank installers to submit their tank fees for tanks installed during the 2015 calendar year. This process change is a result of the update to Minn. Stat. 115.551 that was made during the 2014 legislative session.

This new process will include the following steps:

1. Prior to the end of the calendar year, in November, a reminder letter will be sent to all installers to work with their local governmental units (LGUs) to verify the number of tanks installed during the calendar year. This reminder letter will also contain the SSTS Tank Fee Record/Submission Form that is required to be filled out and submitted to the MPCA.
2. All installers (even those who did not install any tanks during the year) will need to complete the SSTS Tank Fee Record/Submission Form and send it to the MPCA no later than Jan. 31 following the end of the calendar year. If you did not install any tanks in the calendar year you would report zero on the SSTS Tank Fee Record/ Submission Form.
3. Installers will then receive an invoice in April. This invoice will need to be paid within 30 days of receipt to avoid enforcement. Payments for SSTS tank fees should always accompany an invoice.

All installers (even those who did not install any tanks during 2015) will need to complete the SSTS Tank Fee Record/Submission Form and send it to the MPCA no later than Jan. 31, 2016

The LGUs will still submit tank installation counts in their annual reports to the MPCA. The MPCA will use these reports to audit the number of tanks installed reported by installers. If discrepancies are found, the MPCA will contact the installer to follow up. Discrepancies could result in an enforcement action.

If you questions about the new method for submitting tank fees, contact Carol Decker at carol.decker@state.mn.us

MPCA News, Information and Offers!

MPCA SSTS staff changes announced

By the MPCA

Ian Harrison

MPCA SSTS staffer Ian Harrison is relocating from the Detroit Lakes to the Duluth regional office.

Ian will continue to work in compliance and enforcement for the SSTS program. His focus will be on the northeast part of Minnesota.

Brandon Montgomery is a new SSTS staffer in the St. Paul office working in the Rules and Policy group. Brandon will be shadowing Mark Wespetal.

Brandon attended North Dakota State University in Fargo, N.D., where he received bachelor's degrees in Natural Resource Management and Soil Science.

Brandon Montgomery

Brandon stayed at NDSU following his undergraduate work and graduated in December 2014 with his master's degree in Soil Science after working on his thesis titled "Evaluating Dynamic Soil Change in the Barnes Soil Series Across Eastern North Dakota."

Four SSTS enforcement cases logged in most recent quarterly summary

During the period of January-March, 2015, the MPCA completed 58 enforcement cases in 33 counties. Four of the 57 MPCA cases (7 percent) were SSTS related.

They were located in the cities of Mountain Iron, Racine, Albany, and Faribault. Financial penalties totaling $8,588 for the four cases ranged from $550 to $5,775.

More information can be found on the MPCA's website at http://www.pca.state.mn.us/index.php/about-mpca/mpca-news/news-media-center/quarterly-summary-of-enforcement-actions.html.

Attention Maintainers and Service Providers!

The MPCA Certification and Training Unit is beginning the job analysis process for SSTS Maintainers and Service Providers. Consider participating in this process, which begins on Friday, July 10, to share your expertise with the MPCA as they update and align the job tasks, curriculum priorities, and examinations for the Maintainer and Service Provider specialty areas.

As a steering committee member, you will help define and validate the job tasks of each specialty area and refine exam questions that appear on certification exams. Stakeholder groups will meet in person and through webinars between July, 2015 and March, 2016.Travel reimbursement is available. Contact Nick Haig at nick.haig@state.mn.us to learn more about how you can contribute your expertise to the SSTS Program: 651-757-2536.

MPCA promotes awareness via hands-on demos

"Flush the Kids" exhibit in Alexandria teaches students what should and should not go down the drain!

By the MPCA

Former MPCA employee Gretchen Sabel *(shown above , center)* took time off from retirement recently to help others demonstrate to students how septic systems work. She joined MPCA staff Ian Harrison, Detroit Lakes office *(shown above, right)* and Kristi Kalk, Marshall office *(shown above, left)* and Pat Schultz from Douglas County *(not shown)* in Alexandria this spring for an annual water festival there. The four former and current MPCA staffers sent classrooms of children through a simulated SSTS.

The kids entered through a "toilet" and crawled to a "septic tank" where they left behind "solids and greases" before leaving the system through a "drainfield" where they left behind "bacteria" and "phosphorous" bound up in the "soil." Eventually they reach clean "groundwater" (bottles of springwater). Along the way they learned what should go into a toilet connected to a septic system (number one and number two plus toilet paper) and what shouldn't (just about anything else).

If their laughs and screams were any indication, the kids loved going through the simulated septic system. "Some of them wanted to know how they could build one themselves," Kalk said. She hopes to work with someone from Pine County to flush kids through an exhibit in that county later this spring.

With help from Sabel and the MPCA's Barb McCarthy, Pine County was the first to hold a Flush the Kids event back in 2012 when the story was picked up by Onsite Installer magazine.

Working with Type III Systems, *Continued from Page 1*

Either with the discussions, the science or maybe just that type III is just becoming common place, seeing the value in many of these systems is getting easier and easier. After all, what is the other option?

"All the easy systems are done." I have heard this from many contractors. Now after seven years of hearing this, I believe them.

All of the discussion at the annual conference regulator/inspector open forum was about real problems relating to the use of type III systems including; problem soil removal and correction, drainfield on drainfield installation involving both removal of and leaving of the old system, and undersized time dosed systems just to mention a few. The unfortunate reality was there are sites with multiple problems to overcome. With all nonstandard practices, there is concern for health and the environment. With concerns, some LGU's require operation and monitoring, some would not. For many an operating permit is risk dependent.

Finding out the requirements before making promises or commitments with the property owner is a must. Being an active participant, working with the LGU to make recommendations on what monitoring and the duration can create a reasonable plan to address the risks. Most monitoring expected would include a minimum of flow and function checks. If flows were maintained at or below expected design operational flow and the system did not surface, monitoring would many times be allowed, after a three to five year requirement, to cease.

There may be many instances of a type III that would not even be monitored as the construction is so similar to a Type I. There may also be times that a Type III evolves into needing a Type IV technology making for a lifetime of monitoring. All the monitoring may have to be reinstated every time that property is transferred so that the new owner learns to function within the means of the system.

After partaking in the Regulator/Inspector open forum on regulating type III systems it was very apparent there is no one solution. I feel that as a regulator, we need to work with the contractor to help find a solution for an existing home rather than just be in the way of a solution. There may be times that there are a few extra requirements, maybe a variance or two, maybe just being open to fact that there are difficult situations that are just a bit better than living on a holding tank. Maybe the quote for this next year should be "A system can't get any harder than this can it?" We can discuss them all at the 2016 conference.

Tony Ruppert 2014 Scholarship Winners: 2nd Place Essay

Saving the Lakes of Minnesota

By David Pederson of St. Cloud, 2nd Place Tony Ruppert Scholarship Winner

Credit: Minnesota Department of Natural Resources

If you look at the bottom of a standard Minnesota license plate, you will see the phrase: “10,000 lakes”. We live in what is known as “the Land of 10,000 Lakes”, but Minnesota officially has 11,842 lakes within its borders (Minnesota DNR, 2013). Being a teenager myself, I have been out on a Minnesota lake multiple times this summer. Lakes are a big part of summers and winters with so many activities to do on them (swimming, fishing, tubing, water skiing, ice skating, etc.). A large portion of Minnesotans go to a cabin and spend holidays and weekends out on a lake. These activities and family traditions would not be possible for us Minnesotans if our beautiful lakes became contaminated.

This is a clear demonstration why our wastewater needs to be treated properly. There are absolute consequences for not doing so, which is why communicating and educating the residents of Minnesota is so important. The Star Tribune reported that a strong mix of chemicals including: cocaine, DEET, synthetic estrogen, antibiotics, antidepressants, and plastic derivatives in 47 of 50 tested Minnesota state lakes (2013). Our lakes add to the beauty, entertainment, and economy of our state and they obviously need to be kept clean. The questions of “how are these chemicals getting into our lakes?” and “how do we stop our lakes contamination?” need to be asked.

As I said before, antibiotics and other chemicals are big contributors to our lake contamination, but there is one substance that transports these chemicals to our lakes. Feces and how we treat the feces is the main problem to our contaminated lakes. Antibiotic resistant bacteria develop in the gastrointestinal tracts of humans and animals taking antibiotics. Defecation takes these antibiotic materials out of our body, and then the bacteria are collected by our septic systems and sewers and are brought to wastewater treatment collection points. Plants are treating the sludge in the water with anaerobic digesters powered by methane that raise the temperature of solid waste to 95-98 degrees. It is believed that the treatment process is too close to body temperature, which creates a perfect environment for antibiotic resistant bacteria to grow. Professor Tim Lapara of the University of Minnesota has done research on this issue which has shown that exposing municipal wastewater solids to at least 130 degrees destroys the genes used by the bacteria to develop resistance (The Little Digger, 2014).

But we should not just focus on the negative. There have been big strides to improve our lakes and groundwater. My father has been manufacturing and selling septic tanks for 24 years and my grandfather for over 30 years. My family has seen dramatic changes in how wastewater is treated. Beginning with cesspools with dirt bottoms that would allow the wastewater to just sit there in the pool, and seep into our ground water or run-off into area waterways. Since then there have been several code changes over the last couple decades that are having a positive impact on our environment. Septic tanks are now certified, tested, and will reliably perform as specified in a modern-day installation of an on-site sewage treatment system.

We are going in the right direction toward solving this big issue, but more still needs to be done. The first step is getting the word out about this very important issue. Although I talked exclusively about the lakes in Minnesota, this is a problem across all of the United States. We need to communicate on a larger scale. Working as an industry, we need to recognize the problem, work collectively to identify workable solutions that educate, and implement best practices that will preserve, protect, and improve our water quality. Industry Trade Associations play a critical role, in working with enforcement, manufacturers, suppliers, and contractors together to present unified solutions to the consumer, providing safe efficient wastewater treatment for their property.

Pederson Essay, *Continue on Page 15*

Pederson Essay, *Continued from Page 14*

Like all issues, there are going to be different viewpoints. Different viewpoints often bring conflict. Conflict resolution is a five step process, no matter what the conflict is. The first step is: identify the source of the conflict. The source of our conflict is our contaminated lakes. The second step to conflict resolution is: look beyond the incident. We need to look farther past than just the contaminated lakes. We need to take into consideration our entire environment, and how keeping the lakes clean can help shape our entire state. The third step is: request solutions. I believe this is a job for our elected officials in St. Paul along with counties and state agencies. They need to open this issue up to everybody and start brainstorming ideas on how to resolve this issue. The fourth step is: identify solutions that both disputants can support. This is where the elected officials can help narrow the conversation down to just the most popular ideas that have the majority of the support. The fifth and final step to conflict resolution is: agreement. This step is self explanatory; this is the step where a final solution that all parties agree with is chosen and put into action (The Five Steps to Conflict Resolution, 2014).

In 2013, the Star Tribune reported that a strong mix of chemicals including: cocaine, DEET, synthetic estrogen, antibiotics, antidepressants, and plastic derivatives was present in 47 of 50 tested Minnesota state lakes.

We have been blessed with a beautiful earth, a beautiful state, and beautiful lakes within our state. Preserving the water quality in our lakes needs to be a top priority to all Minnesotans. We take for granted the quantity and quality of our lakes, and if we do not work to keep them we could lose them to contamination. We have also been blessed with incredible technology in science. We need to use this science technology to our advantage to solving this issue.

Great minds of the past have done a great job of improving this issue so far. We need to appreciate how far we have come to cleaning up our lakes and groundwater, but at the same time, we need to keep improving and keep educating ourselves even more on this subject. Lastly, we need to continue to work together to solve this problem. There are a lot of smart minds that have opinions on this issue, whether it is a scientist, contractor, or a consumer. No one can single-handedly solve this problem. We need to keep using the five conflict resolution steps and keep working together to find a successful and practical solution.

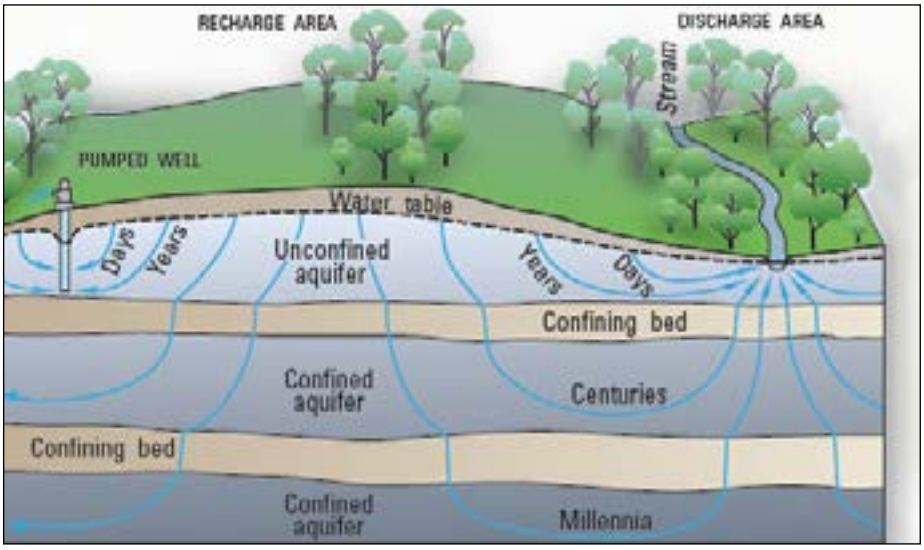
Tony Ruppert 2014 Scholarship Winners: 3rd Place Essay

Water Usage vs. Aquifers

by Aubrey Akerson of Pennock, MN, 3rdPlace Tony Ruppert Scholarship Winner

Our society has became familiarized with taking advantage of the resources we have. Most people never think of the different complications that their actions may cause. One of the main resources we tend to over use is water. When taking a shower, bath, washing dishes, flushing your toilet, or washing clothes, you never think about the issues you are causing.

Aquifer depletion, as defined by the United States Geological Survey, is a condition of declining water levels within the aquifer's structure because natural recharging from surface water and precipitation is inadequate to maintain normal level.(2014) This just means that we are taking more water than the aquifers can produce. This can cause many different problems such as land subsidence and low surface water supply.



Credit: U.S. Geological Survey, Department of the Interior/USGS, U.S. Geological Survey

What do each of these problems involve? Each one of these problems effect the environment in negative ways. Land subsidence occurs when the groundwater has been removed excessively so the sediment is unable to withstand the weight of the ground to the point where it falls in on itself. When the grounds caves in it could cause sinkholes. Sinkholes are a way to allow surface water to enter the aquifers. This leads our supply of surface water to decline.

Low surface water supply would effect the environment and our everyday lives in many different ways. In Minnesota we have many different water areas such as lakes, rivers, ponds, and swamps. Imagine if we had none of that left because of our unwillingness to save a couple gallons of water. We would be unable to go fishing, boating, or swimming then soon we would get to the last few gallons of water and we would need to find new sources for our water supplies.

How do we prevent these problems such as land subsidence and loss in surface water? We could start by watching how much water we use. The average person takes about a fifteen minute shower everyday which is around one hundred and fifty gallons of water. It takes nearly fifty gallons to fill the average sized bath tub. A toilet uses about five to seven gallons when flushed. A laundry machine uses around sixty gallons per load. When washing your dishes in the dishwasher it uses around fifteen gallons and when you wash them in the sink with the tap running it uses about thirty gallons. We are able to reduce the amount of water for each activity. By shaving five minutes off of your daily shower you are able to save fifty gallons of water. Instead of filling the bath tub all the way fill it up half way. This will save about twenty-five gallons. Wash laundry once a week instead of every other day. Wash dishes every other day instead of everyday. There are so many ways to use less water we just need to become committed to executing these ideas. (Washington Suburban Sanitary Commission, 2011)

Water is essential to our everyday lives. Not over using it is a struggle. When using water we never think of the environmental damages we may be causing until it is too late. We need to be careful about the excessive amounts of water we withdraw from the aquifers. We need to remember that yes Earth is mainly water but that does not mean it will be that way forever. We need to save our resources and remember that abusing them could lead to losing them.

Works Cited Page

"Groundwater-related Subsidence." Wikipedia. Wikipedia Foundation, 22 June 2014. Web. 28 June 2014.

Moore, Anne. "Water Wars Loom, Stay Aware and Protect Local Resources." Little Digger 1 Feb. 2014: 2. Print.

Perlman, Howard. "Land Subsidence." Land Subsidence, USGS Water Science School. United States Geological Survey, 30 May 2014. Web. 21 June 2014.

"Potential Threats to Our Groundwater." Groundwater Overuse. The Groundwater Foundation. Web. 8 July 2014.

"Water Usage." *Chart*. Washington Suburban Sanitary Commission, 1 Jan. 2011. Web. 27 June 2014.

Tony Ruppert Scholarship Application

The Minnesota Onsite Wastewater Association (MOWA) is pleased to announce that applications are now being accepted for the Tony Ruppert Scholarship Fund. Up to $5,000 in scholarships are available to high school graduates (as of June 2015) who will be enrolled as a full-time student in post-secondary undergraduate education during the 2015- 2016 school year. In 2014, MOWA awarded five scholarships for a total award of $5,000.

Applicants must be no more than 26 years old as of June 1, 2015 and be a MOWA member, or a child, sibling, grandchild, or niece/nephew of a MOWA member. Students may only win this scholarship once. Students must complete an application, write an essay, and provide certification of the relationship to a MOWA member or member's employee.

A complete application must include: (3 items)

Item 1: Application Form: (To be completed by the student; you may use this form or print all required items on a separate sheet.) Please type or print clearly:

Name: _____ Social Security #: _____

Address:_____City/State/Zip:_____

Phone:_____ E mail address _____

Year graduated from high school _____ MOWA Member Name _____

Name of school you are/will be attending: _____ (Must be a full time student)

Curriculum you are/will be enrolled in: _____

All of the above information is true and correct and I hereby grant permission to MOWA to reprint my essay or abstract in whole, or in part, or use the created digital media for informational or advertising purposes, such as on the MOWA website or as a MOWA newsletter article or press release.

_____ (Applicant's signature)

Item 2: Essay. (See Essay Content Form)

Item 3: Certification Form: (To be completed by the MOWA member)

Name of Applicant for Tony Ruppert Scholarship: _____

The Tony Ruppert Scholarship Fund Applicant is my:_____(insert relation).

I agree that the information contained in this form is true and correct to the best of my knowledge:

MOWA Member Name (printed): _____

MOWA Member Signature: _____ Date: _____

Business Name and Address: _____

All applications must be submitted to MOWA no later than August 15, 2015. Applications will be rated by a panel of MOWA members. Winners will be notified in September 2015.

Send the complete application in Word format to: mowacarla@aol.com

2015 OSTP Certification Course - Descriptions and Offerings

University of Minnesota
Onsite Sewage Treatment Program

Introduction to Onsite Systems (15 Direct Credits)
Fee: $355 - 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 MN*

Topics include:
- Treatment of wastewater
- Wastewater characterisitcs
- Site evaluation
- Soil treatment systems

10-3 Alexandria - Douglas Cty Public Works Building 11/30-12/2/15 Deadline: 11/23/15

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**

Service Provider (21 Direct Credits)
Fee: $485 - 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

49-2 St. Cloud - Moose Lodge 10/6-9/15 Deadline: 9/30/15

Installing Onsite Systems (12 Direct Credits)
Fee: $260 - 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

112-3 Alexandria - Douglas Cty Public Works Building 12/3-4/15 Deadline: 11/26/15

MOWA Welcomes New Members!

Robert Lenort
Bob's Biffys, LLC
Fairmont, MN

Brian Shepard
Shepard Excavating & Septic Service
LaPorte, MN

Tim Smith
Smith's Septic & Excavating, LLC
Cedar, MN

Steven Schirmers
SP Testing Inc.
St. Michael, MN

Leonard Thelen Sr
Thelen's Excavating Inc.
Park Rapids, MN

Jason Thelen
Thelen's Precast Inc.
Park Rapids, MN

2015 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 2015

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 Lac qui Parle Lake....37 Lake....38 Lake of the Woods....39 Le Sueur....40 Lincoln....41 Lyon....42 Mahnomen....43 Marshall....44 Martin....45 McLeod....46 Meeker....47 Mille Lacs....48 Morrison....49 Mower....50 Murray....51 Nicollet....52 Nobles....53 Norman....54 Olmsted....55 Otter Tail....56 Pennington....57 Pine....58 Pipestone....59 Polk....60 Pope....61 Ramsey....62 Red Lake....63 Redwood....64 Renville....65 Rice....66 Rock....67 Roseau....68 Scott....69 Sherburne....70 Sibley....71 St. Louis....72 Stearns....73 Steele....74 Stevens....75 Swift....76 Todd....77 Traverse....78 Wabasha....79 Wadena....80 Waseca....81 Washington....82 Watonwan....83 Wilkin....84 Winona....85 Wright....86 Yellow Medicine....87

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.

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