

# WPCA NEWSCAST



A Newsletter of the Wisconsin Precast Concrete Association

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Spring 2009

## WPCA explores tank deterioration issues

*By Ann Gryphan, Essie Kammer Group*

As you might already be aware, some county regulators and septic installers in the state have been discussing deteriorating concrete septic tanks that are being identified in some pockets of the state, particularly in regions that might have high levels of hydrogen sulfide present in the groundwater. The WPCA is concerned about this and the negative implications it might have for the entire precast concrete industry.

We have contacted county regulators, expressing our desire to help develop a solution. (See letter on page 3.)

In particular, the WPCA staff has spoken with the sanitarians in Door County and Sheboygan County, two counties that have been particularly vocal with concerns about deteriorating concrete septic tanks. Association Manager Ann Gryphan had long discussions with both and reiterated our belief that this might amount to a few isolated problems and our willingness to work together with them to investigate and develop a solution. We are happy to report that both seemed to understand our position and did not seem inclined to promote other types of tanks over precast concrete.

We had hoped to be able to retrieve data from Door and Sheboygan Counties about the problematic tanks they are encountering, such as their age, type, condition, local water/soils conditions, manufacturer, etc. Unfortunately, both county officials stated they do not compile this data, and so far

most of what they have is anecdotal. Although the county sanitarians did agree to forward information to us as they receive it, the lack of hard data leaves us currently unable to collect the information that we need to do our own studies of the problem.

It was suggested, however, that we work with pumpers directly in those counties—perhaps via a survey or other reporting mechanism—that will ask that they report to us what they are seeing daily in the field.

We also have been in communication with an expert at Concrete Sealants who has been studying the issue of concrete tank deteriorating since the mid-1990s. They have accumulated research on concrete deterioration, its causes and how to prevent it from happening. There are some solutions that will work, unfortunately they require time and money.

Purdue University has developed a map of Ohio that shows pockets of the state with high sulfide levels in the groundwater and could determine with near-perfect accuracy where they had deterioration problems with concrete tanks. This could be a start in determining what localities need a high-performance tank, but we have been unable so far to locate a similar map of Wisconsin—we will continue pursuing this avenue.

*Continued on Page 2*

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# Tank deterioration

*From Page 1*

As far as preventing this from happening, there are options, according to Concrete Sealants. A dense concrete of a low water-to-cement ratio is the first step. There is a condition in all concrete that leaves it susceptible to deterioration. The process of hydration (cement + water) create C-S-H, the glue, and leave free lime present. This free lime and the microscopic pores are where much of the problem lies. There are a few ways to take care of the free lime, you can either add a pozzolan (fly ash, silica fume, etc.) to the mix, or add a integral waterproofing agent like Xypex. Also, a penetrating sealer can be applied after stripping to seal the pores of the concrete. These sealers are usually made from a product called sodium silicate which reacts with Calcium Oxide (free lime), and with water creates C-S-H, the glue.

Currently there is not a standardized test for microbial induced corrosion. So many manufactures have their own test. Conseal is currently trying to come up with a sealer/coating system that will be an iron-clad solution to this problem. They hope to have something to offer the industry in the future.

We should plan on having a WPCA all-member conference call again soon to continue discussing this problem and working toward developing a solution.

CALENDAR OF EVENTS

*July 10 & 11, 2009*  
WPCA Summer Conference  
Chula Vista Resort  
Wisconsin Dells, Wisconsin

# Letter to county regulators on deteriorating tanks

County regulators,

The Wisconsin Precast Concrete Association - an active organization within the on-site industry in Wisconsin comprised of 27 manufacturer member companies and 24 associate member companies - would like to contribute to the discussion and potential solution to hydrogen sulfide attack on some precast septic and pump tanks in the state.

We admit there is a problem in some areas of Wisconsin and are encouraged that some installers and manufacturers are addressing the problems in their construction area. The problem appears to be more specific to certain geographical areas of the state and not a severe problem statewide. These area problems might be traced to specific manufacturers or specific areas with high sulfide content in the wastewater. The WPCA would like to investigate further and have decided to gather information from counties with higher incidents, discuss the data with industry engineering experts and report back the findings.

As WPCA members, we provide educational programs that instruct members how to manufacture tanks that will be durable. Many WPCA members have been manufacturing precast tanks since the early 1950s and have not experienced severe damage to septic and pump tanks. These precast tanks are now in service for over 50 years, providing a great value to the on-site industry. We are competitive to other materials and our industry has always been a labor-intensive and job-creating industry within the state. WPCA believes precast products are greener than metal, plastic and fiberglass, using less energy to construct and a lower impact to de-construct at the end of the product life cycle.

Producing tanks with a low water-to-cementitious ratio is one way to help resist hydrogen sulfide attacks on concrete tanks; this can be achieved by using high-strength concrete mixes that contain cementitious additives and/or chemical admixtures and is verified through testing of the mix designs.

It is possible in other geographic areas of the state additional measures may need to be taken to ensure a long life expectancy of the concrete tank. Precast concrete tanks are very important to our state, the people of our state, as well as to our industry. These products are designed to be watertight, structurally sound and offered in many combinations to fit our diverse on-site requirements.

WPCA wants to be part of the solution and we encourage your comments and suggestions during our research.

Sincerely,  
Wisconsin Precast Concrete Association  
Steve Olson, WPCA President



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# National convention coming to Milwaukee

The National Onsite Wastewater Recycling Association (NOWRA) will present the NOWRA 18<sup>th</sup> Annual Technical Education Conference in Milwaukee, Wisconsin, on April 6-9, 2009. Milwaukee will serve as a great location due to its position in the center of the Midwest, in the southeast corner of Wisconsin, on Lake Michigan's western shore.

The NOWRA annual conference serves as the premier conference for the conveyance of new research, regulations and policy, experience and practices in the decentralized wastewater industry. The conference's exposition hall provides an invaluable opportunity to network and view the current and emerging technologies in decentralized wastewater treatment.

In addition to the three-day annual conference covering a broad range of topics relating to onsite/decentralize wastewater treatment, NOWRA will be hosting a pre-conference workshop on April 6<sup>th</sup> focusing on Pharmaceuticals and Personal Care Products in Wastewater, Surface Water, and Groundwater.

## **Educational sessions on:**

- Watershed management strategies and applications
- Wastewater Reuse
- Small Community Wastewater Treatment
- Nitrogen Treatment, Research and Policy
- Innovative Products, Technologies, and Solutions
- Onsite System Performance, Reliability & Sustainability
- NOWRA's premier program, "The Basics of Onsite Systems – A to Z"

## **Don't miss this tour:**

- Four decentralized systems featuring ATU's, mounds, constructed wetland and drip distribu-

## **WPCA Volunteers Needed**

The Wisconsin Precast Concrete Association plans to have an exhibitor booth at the National Onsite Wastewater Recycling Association (NOWRA) convention in April in Milwaukee. The dates and exhibit times are:

April 7: 10:45 a.m. to 6:30 p.m.

April 8: 7 a.m. to 3:30 p.m.

We are looking for volunteers to help staff the WPCA booth during these times.

Thanks to Dalmaray Concrete, County Materials and Meade Construction who helped with the WPCA booth at the WOWRA convention in January. This is a good opportunity to promote our industry to local, regional and national customers. If you are interested in helping with a booth, please contact the WPCA office at (608) 256-7701 or [agryphan@ekgmail.com](mailto:agryphan@ekgmail.com).

tion systems in residential, commercial and school wastewater applications.

## **Things to do and see in Milwaukee:**

- Miller Brewery Tour: Take a tour through the famous Miller brewery.
- Milwaukee Art Museum: Located on Lake Michigan the museum has a beautiful display of art in perhaps the prettiest building in Milwaukee.
- Milwaukee Public Museum: Always something exciting going on, including the NOWRA's off-site reception!

## In the news ... Converting septic tanks into cisterns

- From the Miami Herald, March 16, 2009

SADDLEBUNCH KEYS — Fran and Mali Wagner's oceanfront yard in the Florida Keys is blooming with colorful firecracker bushes, golden dewdrops and luscious Chinese fan palms — thanks to the couple's old septic tank.

They've turned the concrete structure that once held their toilet waste into a cistern that captures rainwater from their roof for use watering trees and plants and washing cars and boats. It took the Wagners two years of pestering and perseverance to convince the state Department of Health that the unusual conversion was safe for irrigation purposes.

Now the retired couple is trying to persuade other homeowners and businesses along the island chain that turning soon-to-be obsolete septic tanks into cisterns is worthwhile for the environment, the landscape and, in the long run, their wallets. In the next couple of years, thousands of homeowners and businesses in the Keys must hook up to new central sewer systems being built. There's a 2010 deadline mandated by the state to eliminate all individual septic tanks for environmental reasons. Once hooked up to a central sewer, homeowners and businesses originally had only one option: decommission the septic tanks by pumping them out and then either punching holes in the bottom or filling them with gravel, which costs about \$500. Turning them into cisterns costs about another \$500 for do-it-yourselfers, and about \$1,000 to \$1,500 if a contractor is hired.

Cisterns not only reduce water costs, but also shrink the sewer bill, which is calculated by how much water a household uses. The Florida Keys Aqueduct Authority — which can provide up to 23 million gallons of water a day to the Keys from sources on the mainland — is supporting the conversions by offering \$500 rebates from a \$25,000 matching grant funded by the South Florida Water Manage-

ment District. Cisterns funded by the grant money could reduce the need for water from the authority by 2.5 million gallons a year. The Aqueduct Authority also hopes that cisterns will reduce the need for more costly water processed at the desalination plant in Florida City.

Fran Wagner, a former engineer, came up with a process that he said is fairly easy. It starts with pumping the septic tank and pressure cleaning it. Roof gutters funnel water into a downspout to fill the tank, and chlorine bleach is added to kill bacteria. Homeowners will need to buy a pump with a pressure tank and supply power to it. Homeowners must have the water tested to obtain approval from the local health department before the water can be sprinkled on lawns or used for other non-drinking purposes.

### **3-Year-Old Girl Drowns in Septic Tank**

A 3-year-old Texas girl drowned Feb. 17 after falling into an open septic tank in her family's backyard. Little Alisandra Galvan was last seen playing outside with her brothers and other relatives. Her mother said the girl did not come inside when called to dinner.

Dozens of volunteers searched the area. According to reports, police spotted the open septic tank and said the only thing they could do was "eliminate the obvious possibilities." According to news reports, the septic tank did have a lid, but it was not secure when the police looked into it. The girl's parents had recently moved into the home and hadn't noticed whether the cover to the septic tank was in place.

Once the tank was pumped out the girl's body was found in the bottom of the tank, along with the tank's cover. While speaking to the media, Galvan's grandfather said the tank cap was not large enough. He speculated if the tank had a seal around the diameter of the opening, the lid might not have fallen inside the tank.

## Thank you, scholarship contributors

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## 2009 scholarship recipients

Thanks to the generosity of our members, we are once again able to award two scholarships. It was announced at our convention in January that the following students will be awarded a \$500 scholarship in August 2009:

- Josh Donohue of Ellison Bay, Wis., is the son of Mike Donohue of Premier Concrete. He plans to pursue a degree in conservation at UW-Milwaukee.
- Shaun O'Neill of Janesville, Wis., is the son of John O'Neill of Lycon Inc. He plans to pursue a degree in pre-medical/dentistry at the University of Chicago.

Congratulations to these two students. We wish them luck in their future studies.

## 'Card check' law moving in Congress

We want to inform you about new federal legislation that was introduced in March in the U.S. Congress, the Employee Free Choice Act, which many business owners around the country are concerned about.

The Employee Free Choice Act would let unions organize a worksite once 50% of employees sign a card saying they support a union. No secret-ballot election would be needed. Supporters claim this is necessary because workers are intimidated by companies to cast a vote against the union in secret. Business groups believe this will make it easier for workers to unionize—and, some say, intimate fellow workers to vote in favor of the union, as the secret ballot vote would be eliminated.

According to the Wall Street Journal, union rolls hit a peak of 32.5% of the labor force in 1952, then fell fast. As of last year, 12.4% of American workers belonged to a union. The share of unionized gov-

ernment employees has held steady for decades, but a mere 7.6% of the private workforce chooses to join a union.

The House is almost certain to pass "card check," so the real battle is in the Senate. Six Senators who previously backed the measure, including Democrats from right-to-work states like Arkansas and Louisiana, are expressing new skepticism. We hope to be able to provide you with more information about this proposed federal law later this spring. In the meantime, feel free to contact your U.S. Congressmen and Senators on this issue.

We will have an attorney present at our summer convention to speak about this issue—the status of this proposed law and what it might mean for your business. We hope you will be able to attend on July 10-11 at the Chula Vista Resort in Wisconsin Dells.

## Study explores wastewater contaminants

WPCA recently obtained a copy of a new study, "Removal of Organic Wastewater Contaminants in Septic Systems Using Advanced Treatment Technologies," published in the January–February 2009 issue of *Journal of Environmental Quality*. The study was done by Jeffrey D. Wilcox and Jean M. Bahr, University of Wisconsin–Madison; Curtis J. Hedman, Jocelyn D. C. Hemming and Miel A. E. Barman, Wisconsin State Laboratory of Hygiene; and Kenneth R. Bradbury, Wisconsin Geological and Natural History Survey.

The detection of pharmaceuticals and other organic wastewater contaminants (OWCs) in ground water and surfacewater bodies has raised concerns about the possible ecological impacts of these compounds on nontarget organisms. On-site wastewater treatment systems represent a potentially significant route of entry for organic contaminants to the environment. In this study, effluent samples were collected and analyzed from conventional septic systems and from systems using advanced treatment technologies. Six of 13 target compounds were detected in effluent from at least one septic system. Caffeine, paraxanthine, and acetaminophen were the

most frequently detected compounds, and estrogenic activity was detected in 14 of 15 systems. The OWC concentrations were significantly lower in effluent after sand filtration ( $p < 0.01$ ) or aerobic treatment ( $p < 0.05$ ) as compared with effluent that had not undergone advanced treatment. In general, concentrations in conventional systems were comparable to those measured in previous studies of municipal wastewater treatment plant (WWTP) influent, and concentrations in systems after advanced treatment were comparable to previously measured concentrations in WWTP effluent. These data indicate that septic systems using advanced treatment can reduce OWCs in treated effluent to similar concentrations as municipal WWTPs.

To receive a copy of this study, call WPCA.

## Winter convention recap

About 50 people turned out for the WPCA 2009 Winter Convention, held Jan. 12 & 13, 2009, at the Holiday Inn & Suites in Madison, Wis.

We heard from many top speakers, including Terry Fellbaum from Mixer Systems, Todd Stair of Herr Environmental, Ray McVeigh of Portland Cement Association and Gregory Stutz of National Precast Concrete Association.

Thank you to all of our event sponsors, which included Concrete Sealants, General Resource Technology, Infiltrator Systems and W.R. Grace. Thank you, too, to all of our exhibitors. We hope to see everyone at our summer convention in July in Wisconsin Dells.



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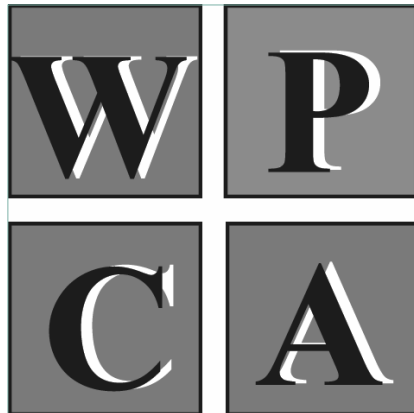
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