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2014

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**INSIDE:**

Peracetic Acid as an Alternative Disinfectant ■ Midyear Conference Recap ■ 2015 Buyers' Guide

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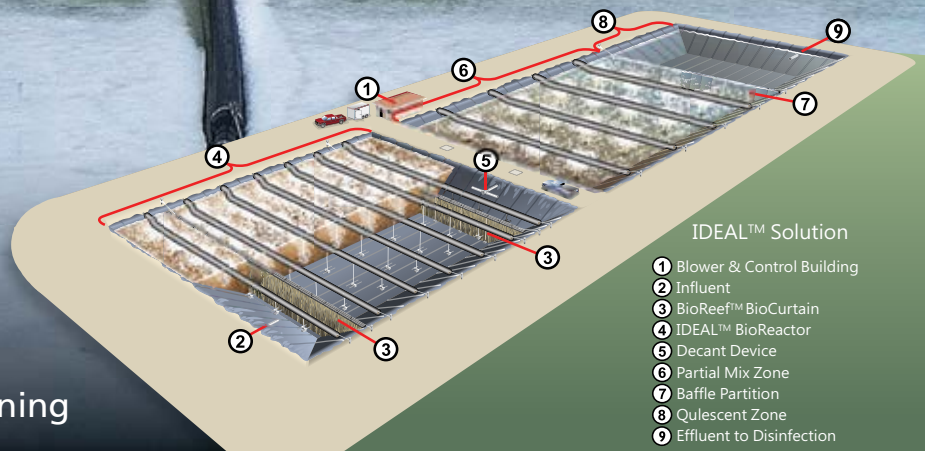
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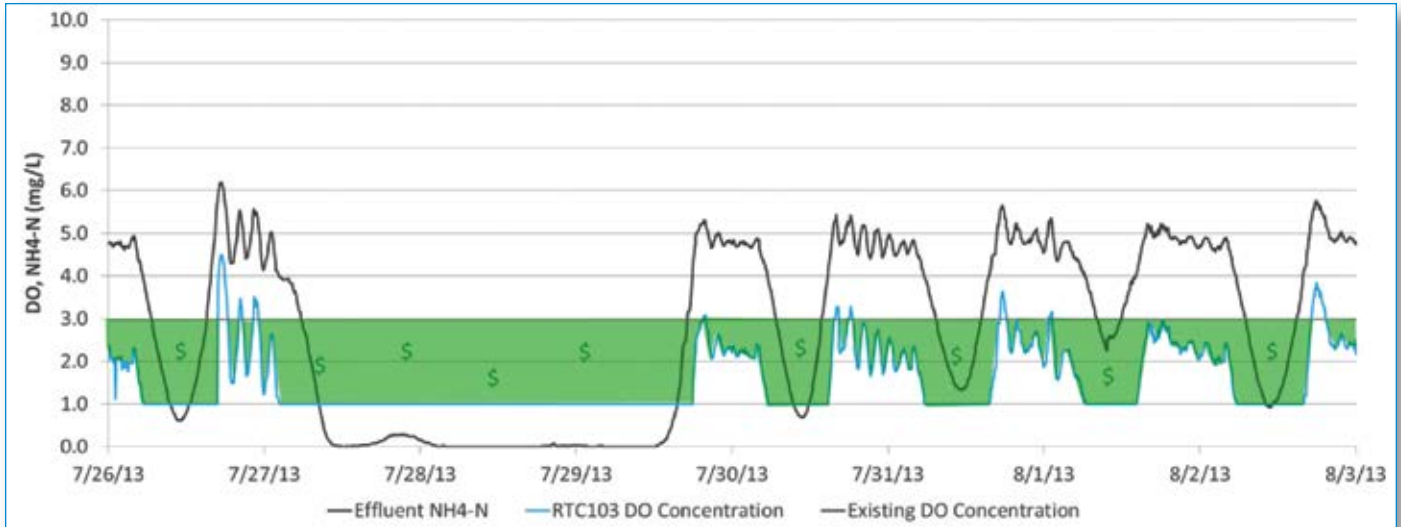
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**FEATURES**

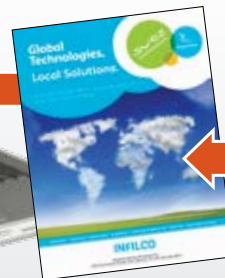
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# Working together to accomplish great things



Mike Foerster

**M**y daughter and I recently had a moment putting together a Rube Goldberg machine for a school project she had to do. For those of you wondering, a Rube Goldberg machine is a contraption, invention, device or apparatus that is deliberately over-engineered or overdone to perform a very simple task in a very complicated fashion, usually including a chain reaction. In our case, our assignment was to pop a balloon with a machine, but it had to take over 15 seconds. We used a K'Nex tower, my son's race car set, dominos, marbles and the popular board game Mouse Trap. We were thrilled when it only took us four hours to originally set up the machine, but then the real work began. The first attempt failed and we started over. The second attempt failed. The twentieth attempt failed. The fiftieth, sixtieth, hundredth, and two hundredth attempts failed. After twelve hours of running and rerunning our machine, over two days, on the two hundred forty second attempt, the balloon finally popped. Our family yelled for joy. We were so thrilled that the components finally worked properly together and we saw success.

“No matter how complicated or simple, machines are made up of components that work together to accomplish some task.”

Ever since then, I have paid close attention to how machines work. No matter how complicated or simple, machines are made up of components that work together to accomplish some task. If any component doesn't complete its component, the task isn't completed. Our treatment plants are wonderful examples of machines, with components that work together to accomplish great things. From headworks to disinfection, each component must work properly in order to complete the task of cleaning wastewater and protecting the environment.

Recently, I witnessed some other “machines” with components that all worked together to bring about amazing results. We have just held our midyear conference and several other great training meetings. It was really amazing to see the committees come together, each member completing its assigned task perfectly, working together, to obtain

amazing things. All of these trainings were great, run like a well-oiled machine with amazing outcomes. Thank you to all the committee chairman and members who helped make these trainings wonderful. Each one of you did a great job and pulled off amazing things. We all benefited from your work and appreciate what you did. Thank you.

Over the next few months, WEAU has other trainings coming up and in April our Annual Conference. Each of our committees will continue to work like well-oiled machines and provide great trainings. I hope that each of us will take advantage of these opportunities and help out if you can. [D&B](#)

**Mike Foerster**  
President

*If you'd like to see our Rube Goldberg Machine, go to YouTube or Google and search, "The parable of Mariab's homework."*

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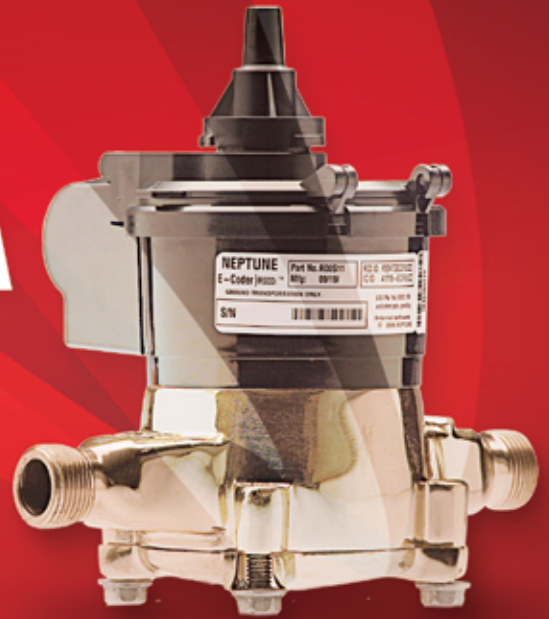
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# Many marvels in Utah

Chad Burrell

**A**t this year's Midyear Conference, I sat listening to Brett Prettyman talk about his many Utah outdoor adventures and bucket lists. As I finished my second piece of cheesecake I was reminded of how truly unique the State of Utah is with both its scenery and wildlife. Unfortunately, I think Brett jinxed me because two weeks after listening to his presentation I had a close encounter with wildlife as I almost hit a mountain lion with my car on my way to work!! I hope he didn't have that effect on the rest of you!

Here at Park City, ski resorts are already opening up for the season and weather is cold. If I jumped in my car however, I could be to tee shirt weather in St. George in about four hours. In one corner of the State we have King's Peak with an elevation at 13,528 feet and in the opposite corner of the state we have Beaver Dam Wash that




Bryce Canyon

clocks in at only 2,179 feet. We have the Bonneville Salt Flats and Bryce Canyon, both of which are unique and extreme contrasts. The list could go on and on.

My family has been able to enjoy many of these wonders and many more and never had to leave this great state. I hope this season reminds you of things you are both



Park City

thankful for and appreciate about living in Utah. Take advantage of the majestic winter scenery the state has to offer and if you don't like the cold, stay inside for a few months and enjoy it on your television, and then get out and enjoy the wonders that spring has to offer here in Utah. Have a Merry Christmas and God Bless!! 

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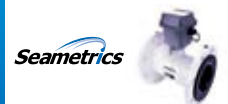
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# Pretreatment training update

By Sarah Leavitt

For several months I have worked to arrange a Pretreatment training with the County Health Departments from around the State. It all came together on November 6, at Timpanogos Special Service District. We started the day with donuts, fruit, drinks and Blair Blonquist famous coffee. He is the Pretreatment Committee coffee guru.

The training began with inviting the Salt Lake County Health Department Food Safety Personnel to explain what they look for during a Food Safety Inspection. The floor was then open to questions from Pretreatment Personnel. The discussion was very productive and gave a great insight to the Food Safety Agency. After the Food Safety Personnel the Pretreatment Personnel shared about their job responsibilities and inspections. Both discussions resulted in the County Health Departments planning meetings with Pretreatment Personnel from their county to work together. There was even discussion to add grease trap and interceptor information into the food handler and manager permit training. The health department association has asked us to submit articles to their newsletter and attend/present at their association conferences held twice a year. As a Pretreatment Coordinator I see great things happening between the County Health Departments and Pretreatment Personnel.

The second portion of the training was presented by Jen Robinson from DWQ on the Proposed Dental Amalgam Rule. This is a touchy subject for most Pretreatment Personnel. This rule has been talked about for around ten years, every time it seems like it will die, it comes back to life. The main reason for not wanting this rule is because most dental offices don't use mercury fillings and imposing a rule on an issue that isn't a problem for most plants seems ridiculous. We understand there are some locations that are having problems, but it is more isolated than across the board. A mercury program needs to be isolated to the facilities that are having issues with mercury. In Utah, only one facility had a problem, the State required them to impose a

program. It was not solved with their mercury program but a plant upgrade. The Proposed Dental Amalgam Rule will increase cost to the POTW and result in a lot of unnecessary paperwork.

I would like to thank everyone who attended the November 6 training and a

special thank you to Timpanogos Special Service District for hosting.

The next Pretreatment Training will be held March 12, 2015 at ULGT. If you have interest in attending or becoming part of the pretreatment committee, please contact Sarah Leavitt at 801-404-6476. [DM](#)



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**When:** January 27, 2015

**Where:** Utah Local Government Trust, 55 South Highway 89, North Salt Lake, UT 84054

**Time:** 8:30am-4:00pm

**Cost:** \$30 member; \$45 non-members

**CEUs offered:** 0.6

**RSVP:** January 20, 2015 (The number of lunches is based on registration)

Reserve your spot by January 20, 2015 online at [WEAU.org](http://WEAU.org) or mail checks to Sarah Leavitt, 911 S 930 W, Payson, UT 84651.

### AGENDA:

<b>8:30-9:00am</b>	Registration	<b>2:00-2:30pm</b>	Advancing Public Image through Lift Stations and Collection Lines by Randy Passey
<b>9:00am</b>	Welcome and Introductions	<b>2:30-3:00pm</b>	Advancing Public Image through Giving Plant Tours by Ken Burgener
<b>9:00-12:00pm</b>	Guest Speaker on Communication, Marketing and Public Image	<b>3:00-3:30pm</b>	Advancing Public Image through Safety by Curt Simmons
<b>12:00-1:00pm</b>	Lunch	<b>3:30-4:00pm</b>	Ways We Can Work Together To Educate the Public CCE Committee
<b>1:00-1:30pm</b>	Advancing Public Image through Pretreatment by the Pretreatment Committee		Wrap-up and discuss additional ideas for educating the public
<b>1:30-2:00pm</b>	Advancing Public Image through Biosolids by Trace Workman		

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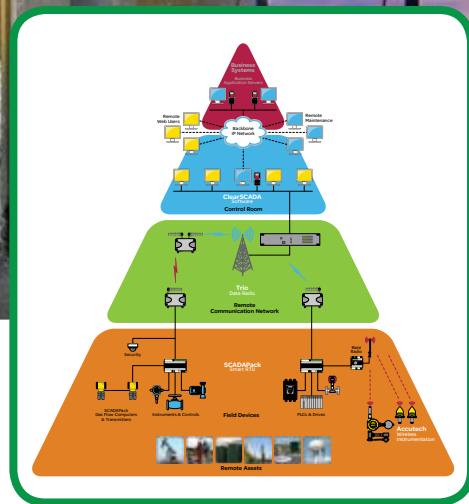
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## Pretreatment

By Gordon Evans

1. T/F An industrial pretreatment facility is designed to remove pollutants before they are discharged to the public sewer system.
2. T/F The rules governing industrial pretreatment can be found in CFR 503.
3. T/F All POTW's with an influent flow over 5 MGD are required to have a pretreatment program according to EPA regulations.
4. T/F POTWS are designed to remove toxic pollutants.
5. Which pollutant is a conventional pollutant?
  - A. Ammonia
  - B. Chromium
  - C. Cyanide
  - D. Oil and Grease
6. What two types of categorical standards are used in the EPA pretreatment program?
  - A. Concentration-based and production based standards.
  - B. Conventional and toxic standards.
  - C. Influent-based and effluent-based standards.
  - D. Priority and nontoxic standards.

7. What are compatible pollutants?
  - A. Pollutants normally found in a concentrated waste stream.
  - B. Pollutants normally found in a dilute waste stream.
  - C. Pollutants normally removed by a POTW treatment system.
  - D. Pollutants normally removed by a physical-chemical treatment system.
8. Industrial wastewater discharge permits allow the industrial user to discharge their wastewater to?
  - A. The local POTW.
  - B. The environment via canal.
  - C. The local wastewater collection system.
  - D. A pretreatment facility.
9. Calculate the time interval between samples if the sampler runs for 8 hours and the total volume of flow sampled is 15000 gallons. The sampler will collect 150 mills of sample for every 1500 gallons of flow.
  - A. 48 min.
  - B. 80 min.
  - C. 84 min.
  - D. 0.8 hours.
10. With the information in question 9, calculate the number of samples to be collected.
  - A. 6 samples
  - B. 7 samples
  - C. 9 samples
  - D. 10 samples

### Answers:

1-T; 2-F; It's 40 CFR 403.2; 3-T; 4-F; 5-D; 6-A; Concentration-based and production-based; 7-C; Pollutants normally removed by a POTW treatment system; 8-C; The local wastewater collection system; 9-A: 48 minutes; 10-D: 10 samples

$$\text{Number of samples} = \frac{\text{Sampling time interval, minutes}}{(\text{Total time}) \times (60 \text{ min/hour})} = \frac{48 \text{ minutes/sample}}{(8 \text{ hours}) \times (60 \text{ min/hour})} = 10 \text{ samples}$$

$$\text{Number of samples} = \frac{\text{Flow Volume/gal}}{\text{Sampling time/minutes} \times (\text{Sample Interval/gal}) \times (\text{Work time/hours})} = \frac{15000 \text{ gallons}}{(48 \text{ minutes}) \times (60 \text{ min/hour}) \times (1500 \text{ gal})} = 10 \text{ samples}$$

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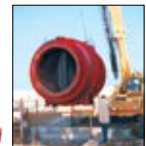
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# TRAFFIC CONTROL

## Distracted driving and surviving life in the fast lane

by WEAU Safety Committee

Managing traffic flow and utility work in the road is a dangerous combination, even under the best conditions. It is dangerous both for motorists who drive through the complex array of signs, barrels, and lane changes and for the utility workers who maintain our wastewater collection systems. Current communication technology (cellular phones/ texting/ internet capability and Bluetooth connectivity), angry drivers, road rage, and the myriad of substances that Americans use to cope with our nonstop lives create a deadly combination on our roads. Driving used to be just transportation to go shopping, visit family and friends, or transport ourselves to and from work. Drivers today consider that operating a vehicle is an inalienable right, not a privilege that is maintained by following the rules of the road and treating other drivers, cyclists, pedestrians, and utility workers with consideration for everyone's safety. Distracted driving changes a routine trip into a potential hit/miss experience for all parties. Utility workers should always consider the danger of working in the roadway before and



during each operation in the road. Any near misses should be critiqued to improve the next traffic control setup. All trained and certified flaggers, traffic control technicians, and traffic control supervisors are acutely aware that the

driving public text and/or read their messages when behind the wheel, motor through traffic control setups, drive in the opposing lane of traffic, may randomly stop in the travel lane, and leave the utility worker with the impression that their work




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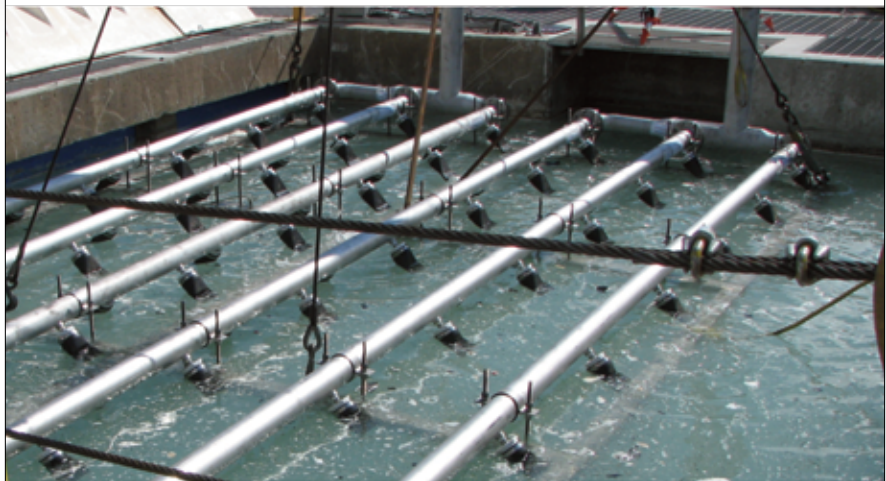


is a nuisance. Working in urban intersections during heavy traffic periods are an even greater risk for the utility worker. Frequent operations in the road without experiencing a near miss or incident can lead to a false sense of security. Placement of signage, panels, barrels, or cones in accordance with the federal MUTCD (Manual on Uniform Traffic Control Devices) directing traffic around a work zone does not eliminate the vulnerability of the operator. The thought process of a newly certified, but inexperienced operator may assume that “the prudent driver will observe our traffic control setup and follow the redefined traffic lane around our work crew.” By not incorporating all precautions and available equipment in accordance with MUTCD and UDOT guidelines we are not reducing the operator’s vulnerability. Assuming that a minimal traffic control setup is acceptable, i.e., ‘let the driver figure it out’ is playing a dangerous game. The loser doesn’t always get to go home!

For management: The safety of all employees is paramount. Traffic control planning and implementation must be a significant part of your safety program. Train and equip your wastewater collection system employees before they embark on a maintenance task in the roadway, routine or otherwise. Utah LTAP (Local Technical Assistance Program) [www.utablta.org](http://www.utablta.org) is an excellent resource to educate your employees who perform utility tasks in the road. Make sure your employees have the training certification and the equipment that they need to work safely in the roadway. The bottom line – all our employees have the right to go home to their families and friends unharmed at the end of each day. Survival in the fast lane is critical. Utility work in the roadway is one of the most dangerous jobs in our industry. 



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# EMERGENCY TANK REPAIR, PREVENTION AND PREPARATION

By Erika Henderson, Director of Research, Pittsburg Tank & Tower, Inc. [www.watertank.com](http://www.watertank.com)

Drinking water tanks are surrounded by threats daily, but most problems associated with emergency tank repairs can be prevented. Extra time and maintenance may be needed to ensure the tank is protected, and water operators should have an effective plan to restore water services if a tank emergency does occur.

Most problems that lead to emergency tank repairs can be prevented with proper maintenance and regular inspections. Obtaining accurate information and saving the documentation of every inspection and repair can enable a deeper level of understanding about the tank's history. The knowledge gained from its history can then be used to help create a more effective strategy in preventing and limiting future tank repairs.

Harsh winter weather often increases the risk for tank damage and emergency repairs. Last winter, several drinking water tanks nationwide experienced damage, leaks, and failures. A Minnesota tank froze twice over the winter because of the prolonged deep freeze<sup>1</sup>. And, according to *The Old Farmer's Almanac* for 2014-2015, "this winter will be another Arctic blast with above-normal snowfall throughout much of the nation." Therefore, measures should be taken now to protect the tanks and help prevent damage that could be caused by snow, ice and freezing temperatures.

Drinking water tanks are more susceptible to freeze during nighttime



Frozen EWT

hours when water demand and turnover rate is low. Moving water is less prone to freezing, so keeping the turnover rate high or adding a mixing system can help. The National Fire Protection Association

(NFPA) recommends maintaining the water temperature at or above 42°F to prevent tank freezing, and the water temperature can be monitored by installing a low-water temperature alarm<sup>2</sup>. But, to maintain appropriate temperature, heating may be necessary. Insulation and standby electric heaters can be used for systems not already set up for steam or hot water.

All heater pipes, heating elements and temperature alarms should be tested, inspected and replaced as needed before the heating season begins and monthly thereafter, or malfunctions are likely to occur. For example, the heater in a wooden Chicago water tank malfunctioned in March and the water



Frozen NY bolted tank



inside froze solid. The tank's structural integrity was compromised and the tank had to be dismantled later that month<sup>3</sup>.

Changes in temperature can cause pipes to expand and contract, making them vulnerable to breaks and leaks. Therefore, all pipes subjected to freezing or temperature change should be protected with insulation and heat tracing. The pipes inside small dry risers of elevated water tanks should also be insulated to prevent the inlet and outlet pipes from freezing. In January, a water pipe broke underneath the foundation of a Minnesota water tower and nearly 500,000 gallons of water was drained from the tank in a mere 30 minutes<sup>4</sup>.

Pipe connections and expansion joint connections should be monitored closely for leaks. Leaks hidden behind insulation can be difficult to locate, and insulation should be inspected and replaced as needed to reveal any hidden defects. The American Water Works Association (AWWA), NFPA and Occupational Safety & Health Association (OSHA) have devised a system of codes and standards that contain several recommendations on pipe inspections and a suggested timetable for inspecting each type of pipe.

Pumps, altitude valves, and overflow pipes should be checked before winter to prevent malfunctions. An overflow to grade may freeze solid if screens are plugged or flap valves are stuck, and vents can become clogged with ice and snow if they are not vacuum pressured and frost proof. Pumps or altitude valves that fail to shut off during tank filling can cause the



Frozen standpipe

tank to overflow. AWWA states, "A properly operated tank should not overflow during normal operation. An overflowing tank is considered an emergency condition and the malfunction causing the overflow should be determined and corrected as soon as possible." AWWA does not recommend the use of an internal overflow, because if an overflow failure occurs it could go unnoticed and empty the tank<sup>5</sup>. This past winter, five water

distribution pumps in Arkansas froze overnight, leaving the city's above-ground storage tanks empty. Without water, the city's fire hydrants became useless and firefighters were left with nothing but the water on their trucks<sup>6</sup>.

All valves, pipes, controls, alarms, and liquid level indicators must be in proper working order for adequate water to be available. Failure of any component could have dire consequences, and all



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components may need to be inspected daily during extreme weather for signs of frozen, cracked or damaged areas. Sometimes, despite all measures taken, emergency repairs may still be needed. Therefore, effective strategies must be devised for a quick response and recovery. An established relationship with a dependable and experienced tank professional, already familiar with the tank, can be extremely useful. The selected full-service tank company should be educated, certified and have received the proper safety training necessary to perform tank inspections, repairs and modifications.

They should be available 365 day a year to answer questions, address concerns, and be flexible enough in their scheduling to make emergency repairs when needed. For more information on emergency tank repairs, contact the author or Don Johnston at [djohnston@watertank.com](mailto:djohnston@watertank.com) 270-826-9000. [DJI](#)

1. Hudson, Bill. "Tough Winter Leaves Municipal Water Towers Frozen" *Minnesota.cbslocal.com*. 14 April 2014.
2. National Fire Protection Association. *NFPA-22*. 2008 Edition. 43.

3. Emmanuel, Adeshina and Holliday, Darryl. "Andersonville Water Tower Removed, Frozen Solid" *DNAinfo.com*. 20 March 2014.
4. Hage, Jeff. "Catastrophic break: 500,000 gallons of water emptied from Milaca water tower in a half hour" *The Mille Lacs County Time.com*. 9 January 2014.
5. American Water Works Association. *AWWA Manual M42*. 2013 Edition. 91.
6. Suriani, Mike. "Frozen Pumps Leave West Memphis without Running Water" *WREG.com*. 6 January 2014.



Erika N. Henderson is the director of research at Pittsburg Tank & Tower Group. She received a bachelor's degree in International Relations from University of Southern Indiana, and she has been published in numerous water publications. Please contact her at 270-826-9000 ext.350 or [ebenderson@watertank.com](mailto:ebenderson@watertank.com) for more information about water tanks.



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# Peracetic Acid (PAA)

as an

# Alternative Disinfectant

By Jacquelyn Wilson  
Technical Services Engineer – PERAGreen Solutions, LLC.

## Introduction

Throughout the world, the most commonly utilized wastewater disinfectant is chlorine, usually added as sodium or calcium hypochlorite, with use of a dechlorination method. Chlorine is a persistent disinfectant, which does not degrade in the environment and so must be quenched, typically with sodium bisulfite, in order to meet effluent permit requirements. The wide-span use of this product is primarily due to the inexpensiveness and its accessibility. However, recent health concerns have emerged regarding the harmful by-products produced by chlorination. In surface waters pre-treated with high doses of chlorine, total organic halides are produced which show long-term toxic risks.

In order to reduce DBPs (disinfection by-products) formation, alternatives to disinfection treatment have gained momentous traction in the water and wastewater industries. Combinations of commonly used disinfectants such as UV and chlorine have been pursued as viable options for reducing total organic halide concentrations. Additional research has been performed to find an alternative disinfectant similar to chlorine that does not produce harmful by-products, peracetic acid (PAA).

## Background

Peracetic acid or peroxyacetic acid (PAA) is an aqueous equilibrium solution of acetic acid, hydrogen peroxide, and water. The equilibrium is represented in Figure 1. PAA has been used in the food and beverage and paper industries for many years and has been studied in wastewater disinfection since the 1980s. PAA's direct oxidation and

destruction of the cell wall of microbial pathogens allows for its prime candidacy as a disinfectant in wastewater treatment.

Peracetic acid has a diverse repertoire of uses including: disinfection of secondary systems, disinfection of CSO and SSO systems, filter cleaning, algal and snail fouling, and bypass/redirect/blend system disinfection. The product is dependent upon contact time, mixing and starting dose. PAA has been seen to be relatively insensitive towards suspended solids provided enough contact time thusly making it a prime candidate for CSO disinfection. However, the best results for disinfection can be seen after filtered tertiary effluents.

## Properties

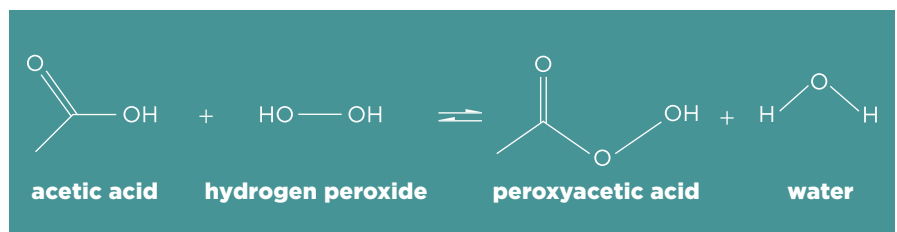
This product is a colorless, clear liquid. PAA has no foaming capabilities. A strong vinegar odor is observed due to the acetic acid concentration, and this odor is more pungent with increasing concentration strength. The pH is less than 2 with a specific gravity of 1.10 to 1.11 depending upon temperature. The freezing point of the product is  $-40.3^{\circ}\text{C}$ . The product is produced by reacting acetic acid and hydrogen peroxide over a few days in

order to achieve high yields. Commercially, this product is available in concentrations from 2 to 15% w/w. Though peroxide is also a commonly recognized disinfectant, the active disinfecting agent within this equilibrium is PAA as it is highly active at low concentrations across a wide range of microorganisms.

The germicidal properties of PAA are found to be bactericidal at 0.001%, fungicidal at 0.003%, and sporicidal at 0.3%. The disinfection efficacy of PAA on microorganisms can be ranked as: bacteria > viruses > bacterial spores > protozoan cysts. Its bactericidal effectiveness is dependent upon the organism. E. coli has been found to show low resistance to the PAA mechanism and similarly fecal coliform. Following in susceptibility to PAA disinfection are enterococcus, giardia and cryptosporidium.

Disinfection by-product formation during PAA disinfection has been studied and it has been found that no brominated or chlorinated phenols are formed. The peracetic acid decomposition products are acetic acid, hydrogen peroxide, oxygen and water. PAA can be consumed in an aqueous solution in

Figure 1



**Figure 2**

## Oxidation Potentials Among Biocidal Agents

Biocidal Agent	Oxidation Potential (V)
Ozone	2.07
Peracetic acid	1.81
Hydrogen peroxide	1.78
Sodium hypochlorite	1.49
Chlorine dioxide	0.95

three ways: spontaneous decomposition, hydrolysis and transition-metal-catalyzed decomposition. High levels of solids in the water system can also consume the product so adequate dosage and contact time is required for disinfection. Within the pH range of 5.5 to 8.2, spontaneous decomposition of PAA to acetic acid and oxygen occurs. PAA produces little to no toxic or mutagenic by-products after reaction with organic material in wastewater effluents or surface waters. By-products produced are mainly carboxylic acids, which are not recognized as mutagenic. No halogen disinfection by-products have been observed.

### Mechanism

Similar to chlorine, PAA is an oxidizing agent. PAA disinfects by oxidizing the outer cell membrane of bacterial cells by disrupting the function of the lipoprotein cytoplasmic membrane and transport through cell walls. Oxidations occur by the transfer of electrons; the stronger the oxidizer the faster the electrons are transferred to the microorganism and the faster the microorganism is inactivated or killed. Peracetic acid has the second highest oxidation potential, next to ozone, among common disinfectants as shown in Figure 2.

Peracetic acid reacts with organic matter in sewage water systems. The greater the amount of organics, the longer the reaction time required for disinfection. In systems with little organic matter, holding times of less than 10 minutes are functional for disinfection. Highly organic systems require up to 30 minutes or greater depending on the system.

**Figure 3**



### Applications

Peracetic acid is commonly used as a disinfectant in the food and beverage and paper industries and has begun gaining traction in wastewater and water. Studies of PAA have been performed globally and are cropping up in North America at an increasing rate. North America now has several active PAA applications at wastewater facilities. The product is being used as a tertiary disinfectant, CSO disinfectant, blend/bypass/redirect disinfectant, enhancing UV disinfection, and lagoon disinfectant (Figure 3).

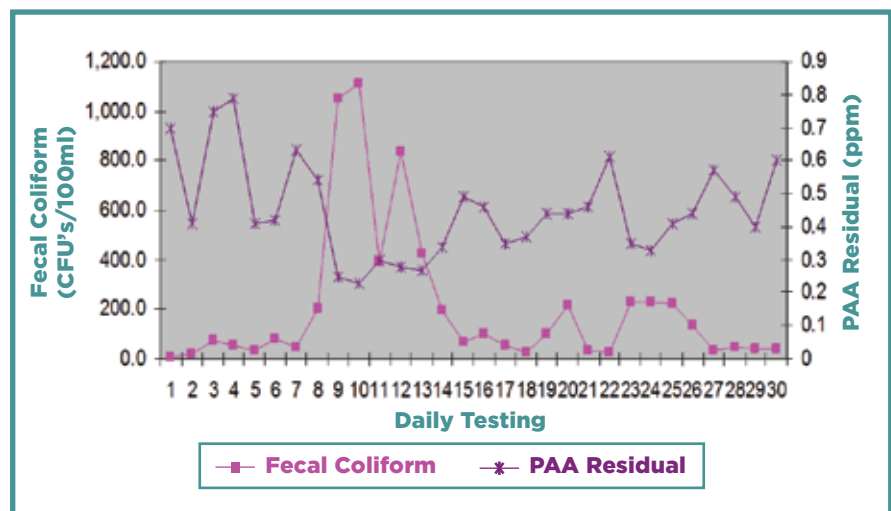
In secondary systems, PAA has been seen to outperform chlorine and bisulfite applications in pathogen reduction as well as cost. Research had previously suggested that PAA was too expensive to produce due

to limited production globally; however studies show that product feed is so low to achieve kill that a 26% cost reduction is possible when compared with chlorination/dechlorination. Typical feed rates for secondary systems are found to be below 1.0 ppm. In order to achieve maximum pathogen reduction, a residual floor of 0.35-0.40 ppm must be maintained as seen in Figure 4. A hand held DPD test using a total chlorine colorimeter can be used to monitor residual and establish control.

Systems feeding PAA have seen tremendous success and versatility in the use of the product. Peracetic acid has been shown to bring plants into compliance within a half-hour of feeding, reduce pathogen levels by 25% within five seconds and handle pathogen spikes up to 290,000 CFU/100 mL

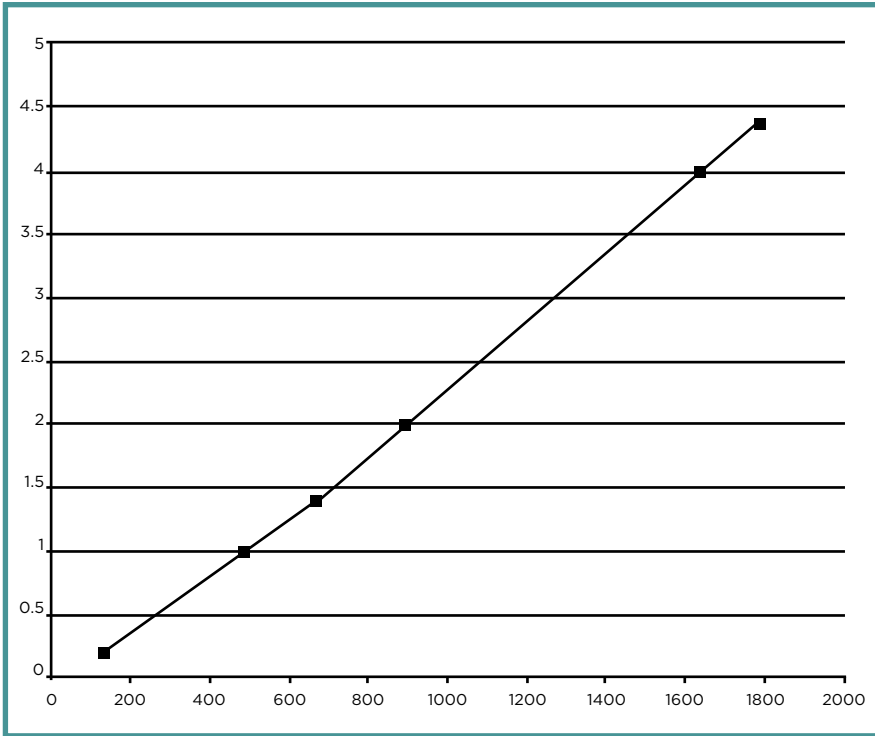
**Figure 4**

## Fecal Coliform vs. PAA Outfall Residual



**Figure 5**

**PAA Initial DEMAND ppm vs INF TSS ppm**



without changing dosage. To increase pathogen kill, a combination of UV and PAA disinfectants can be utilized. This is known as an advanced oxidation process that occurs as the UV light enhances the formation of radicals such as hydroxyl groups, found in PAA, making the environment unfavorable to the survivability of the microbes. Peracetic acid naturally decomposes and at effluent discharges, PAA residuals decrease in concentration by 94% eight feet into the receiving stream from the outfall point from 0.39 ppm in the effluent overflow to 0.02 ppm.

In CSO and lagoon applications the increase in organic material and solids

levels can increase the starting dosage required as well as the contact time needed for treatment. Solids levels and PAA dosage can be seen to follow a straight line curve as shown in Figure 5. As the TSS/VSS levels increase so too does the feeding dose of PAA. The product requires increased time to penetrate the solids membrane and fully kill the pathogens inside thusly, a longer holding time after injection is desirable. The increase in dose required for solids can influence the "initial demand" on the product, and once achieved, the PAA uptake drops and begins to degrade naturally.

## Conclusion

Pilot studies, virus testing and water treatment studies are being conducted throughout the United States and the use of peracetic acid is becoming increasingly common in municipalities. Peracetic acid is a viable alternative disinfectant that produces no harmful by-products, achieves pathogen reduction, and is cost effective. Further work must be conducted with regulatory agencies involved in permitting in order to ensure full understanding of the product and how to accurately monitor it. [bn](#)

## Bibliography

Gehr, R.; Wagner, M.; Veerasubramanian, P.; Payment, P. Disinfection efficiency of peracetic acid, UV and ozone after enhanced primary treatment of municipal wastewater. *Water Research*. **2003**, 37, 4573-4586.

Kitis, M. Disinfection of wastewater with peracetic acid: a review. *Environmental International*. **2004**, 30, 27-55.

Lorecheim, K. Q&A: How Can I Avoid Rust in BSCs while Still Ensuring Proper Decontamination? *ALN*. **2010**.

Luukkonen, T.; Teeriniemi, J.; Prokkola, H.; Rämö, J.; Lassi, U. Chemical aspects of peracetic acid based on wastewater disinfection. *Water SA*. **2014**, 40, 73-80.

Profaizer, M.; Massone, A.; Nurizzo, C.; Bandera, F.; The Behaviour of Peracetic Acid as Water Disinfectant. *Mededelingen – Faculteit Landbouwkundige en Toegepaste Biologische Wetenschappen Universiteit Gent*. **1997**, 62, 1785-1792.

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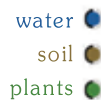
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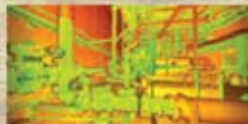
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## Buyers' Guide



🔍 Company Listings

🔍 Products & Services Source Guide

Welcome to our *Digested News* Buyers' Guide. On the following pages, you will find information that will help you meet your purchasing requirements throughout the year ahead. The initial three pages of this Guide list categories of products and services along with the various companies that can provide them to you. The remaining three pages provide an alphabetical listing of the companies as well as the contact information you will need to reach them. All companies listed in this Buyers' Guide are advertisers in this issue of *Digested News*.



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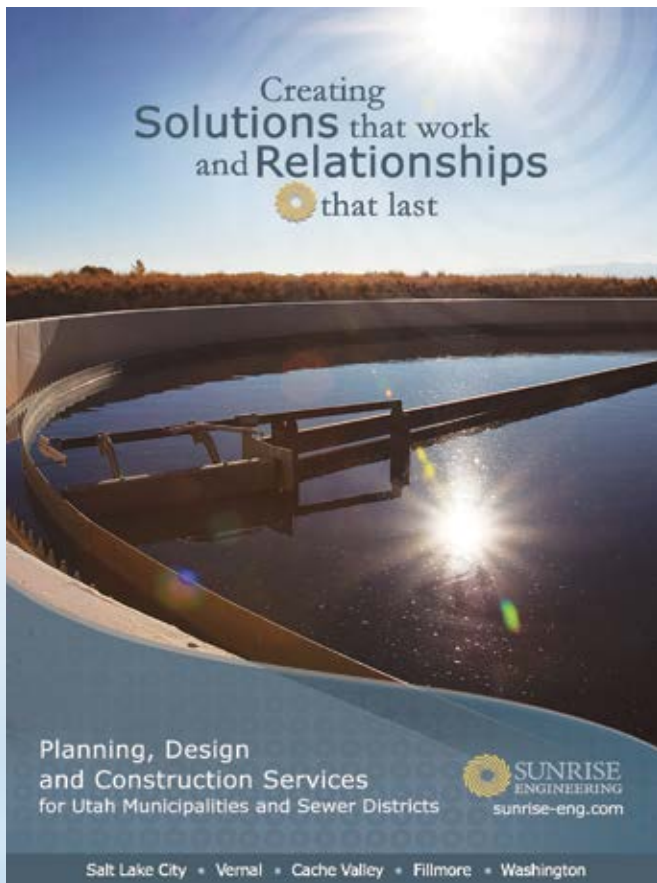
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**WE NEED YOUR EXPERIENCE AS OPERATORS, MANAGERS, AND PROFESSIONALS TO EVALUATE OUR ANNUAL AWARDS NOMINEES.**

**We in need experienced individuals to participate on various committees:** Pretreatment, Collections, Safety, Operators Laboratories, Facilities, and more.

**The kickoff meeting for the awards evaluation committees will be**

**January 28, 2015 from 11:30 to 1:00 at 195 North 1950 West in Salt Lake City.**

**This is a WEAU Event that wants Paul to attend, so naturally lunch will be provided. So please RSVP to [dgriffin@utah.gov](mailto:dgriffin@utah.gov) so that we will have enough food for everyone.**

Volunteers will have the opportunity to visit nominated facilities and individuals throughout the State.



Water Environment Association of Utah  
 General Association Awards  
**2014 NOMINATION FORM**

**Instructions:** Place a "X" mark in the box next to the award for the nomination. Next, fill out the information for the nominee and yourself (nominator) as fully as you can, this information will be used by the selection committee to process the nomination. Please send a separate application for each nomination, **OK to copy form if needed for this purpose.** Next, FAX application to: (801) 536-4301, **no cover necessary**, e-mail to: **dgriffin@utah.gov**, or mail to: Division of Water Quality (attention Dan Griffin) PO Box 144870, Salt Lake City, Utah 84114-4870. Applications are due by December 30, 2014.

WEAU is a member organization where members can nominate those individuals or organizations within our industry that deserve recognition by the association for their efforts. When you send in your nomination, you will be contacted to arrange a time for a visit by the awards committee. Individual awards must be nominated by someone other than nominee. If nominating an individual, please notify their supervisor and have them sign the form. Members with significant managerial responsibilities, (i.e., general managers, etc.) are ineligible. Those with significant supervisory responsibilities, (i.e., coordinators, directors, etc.) should be considered for the supervisor award, or program award. If you have any questions, please feel free to contact Dan Griffin at (801) 536-4387. Good Luck.

Plant under 5 MGD	Plant over 5 MGD	Laboratory
Discharging Lagoon	Non-Discharging Lagoon	Laboratory Technician
Operator under 5 MGD	Operator over 5 MGD	Safety
Collection System under 5 MGD	Collection System over 5 MGD	Maintenance Specialist
Collection Operator under 5 MGD	Collection Operator over 5 MGD	Supervisor
Pretreatment Program	Pretreatment Specialist	Biosolids Program
Young Professional		

**2014 NOMINEE INFORMATION:**

Name: \_\_\_\_\_ (As it will appear on the plaque)  
 Facility Name: \_\_\_\_\_  
 Facility Manager: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
 Phone: \_\_\_\_\_ FAX: \_\_\_\_\_  
 Supervisor's signature: \_\_\_\_\_

**FAX FORM TO:**  
 (801) 536-4301  
 or  
**E-mail FORM TO:**  
**dgriffin@utah.gov**  
 or  
**Mail FORM TO:**  
 Division of Water Quality  
 Attn: Dan Griffin  
 PO Box 144870  
 Salt Lake City, UT 84114-4870  
**By Dec. 30, 2014**

**NOMINATOR INFORMATION:**

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City/State/Zip: \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
 Phone: \_\_\_\_\_ FAX: \_\_\_\_\_

Briefly describe why you think the nominee should be considered for an award:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

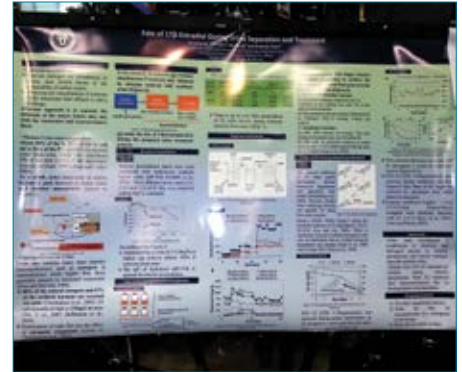
# 2014 Poster Winner



Poster winner Morris Demity, a PhD student in environmental engineering



1st Place



2nd Place

# Bob Okey Scholarship



Bob Okey Scholarship – Ali A. Salha and Ayman Alaffi



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# USU Environmental Engineering team wins 2nd place in the prestigious WEFTEC Student Design Competition

By: Ayman Alafifi

A possible solution to an ongoing environmental problem at one of Utah's wastewater treatment ponds could leave the site smelling like roses. A team of environmental engineering students at Utah State University's College of Engineering took home a national award last week for designing an innovative process to remove two major players in the wastewater nutrient dilemma: nitrogen and phosphorous. The USU student chapter of the Water Environment Association of Utah wowed a panel of judges at WEFTEC, the largest water conference in the nation on September 28 in New Orleans, La., and took second place at the student competition. The Team is composed of Alex Rasband, Ayman Alafifi, William Fullmer and Daniel Horne.

Alafifi says the team evaluated multiple wastewater treatment alternatives and recommended a path forward to help Morgan Wastewater Treatment Plant meet future nutrient regulations and protect endangered species at receiving waters. Several alternatives were considered and a treatment solution was recommended based on costs, input from the City, and feasibility. Team leader Alex Rasband says nutrient levels in effluent at the Morgan, Utah wastewater treatment site can be minimized by cultivating biosolids and phosphorous-rich sludge into fertilizer pellets. In addition, nitrogen can be removed from the effluent by reusing it to irrigate ornamental crops – including roses – that would be grown in on-site greenhouses and sold to floral shops. Faculty adviser Dr. Michael McFarland says the system is designed to circulate water through the greenhouses for a total of four hours. As wastewater flows through the crops, plants take up nitrogen, leaving it free of added nutrients. If the treated wastewater then meets certain quality standards, it would be used to recharge groundwater through an infiltration basin. McFarland says removing nutrients from effluent is a challenge all wastewater facilities have to address. He says using treated wastewater for a greenhouse growing operation makes good economic sense for small communities like Morgan where flow is minimal. "There are a number of small lagoons around the state of Utah all facing the same challenge of meeting these nutrient limits," he said. "The only way we can do this is because the flow at Morgan is so low. This idea was abandoned in larger communities because the flow is just too high." Discharging effluent that contains high nitrogen levels can create toxic conditions for aquatic environments and lead to algae blooms, dissolved oxygen depletion and fish die-offs.


Alafifi says that the team proposed a zero discharge alternative by land applying treated wastewater in summer months and applying the effluents to a combined hydroponics-infiltration basin system in winter months. The proposal shows a great potential of generating revenues by growing and selling animal feed crops during summer months and ornamental flowers in winter months. The system also helps recharge the aquifer. He says the concept of using wastewater in hydroponics would need additional research and a pilot project to test its efficiency and profitability before city officials in Morgan could adopt any formal proposal. [ENR](#)



USU Team with Michael McFarland

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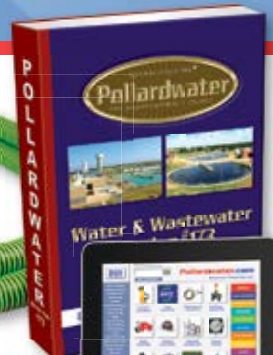
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