

FALL
2018

The Official Publication of the Water Environment Association of Utah



DIGESTED news

Celebrating 50 Years of Clean Water

Avoiding SNC from pH Violations

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INSIDE:

How to be a Hero in the Water Sector ■ Young WEF Award Winners



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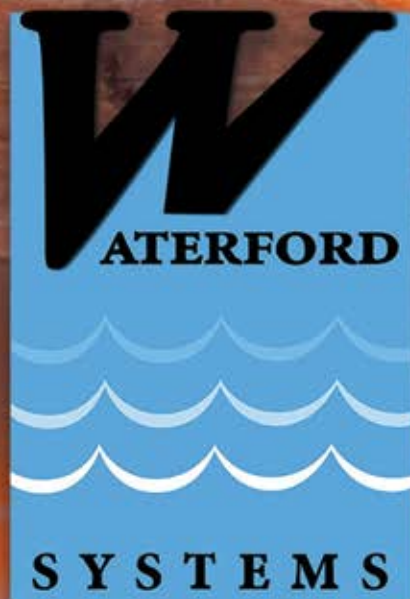


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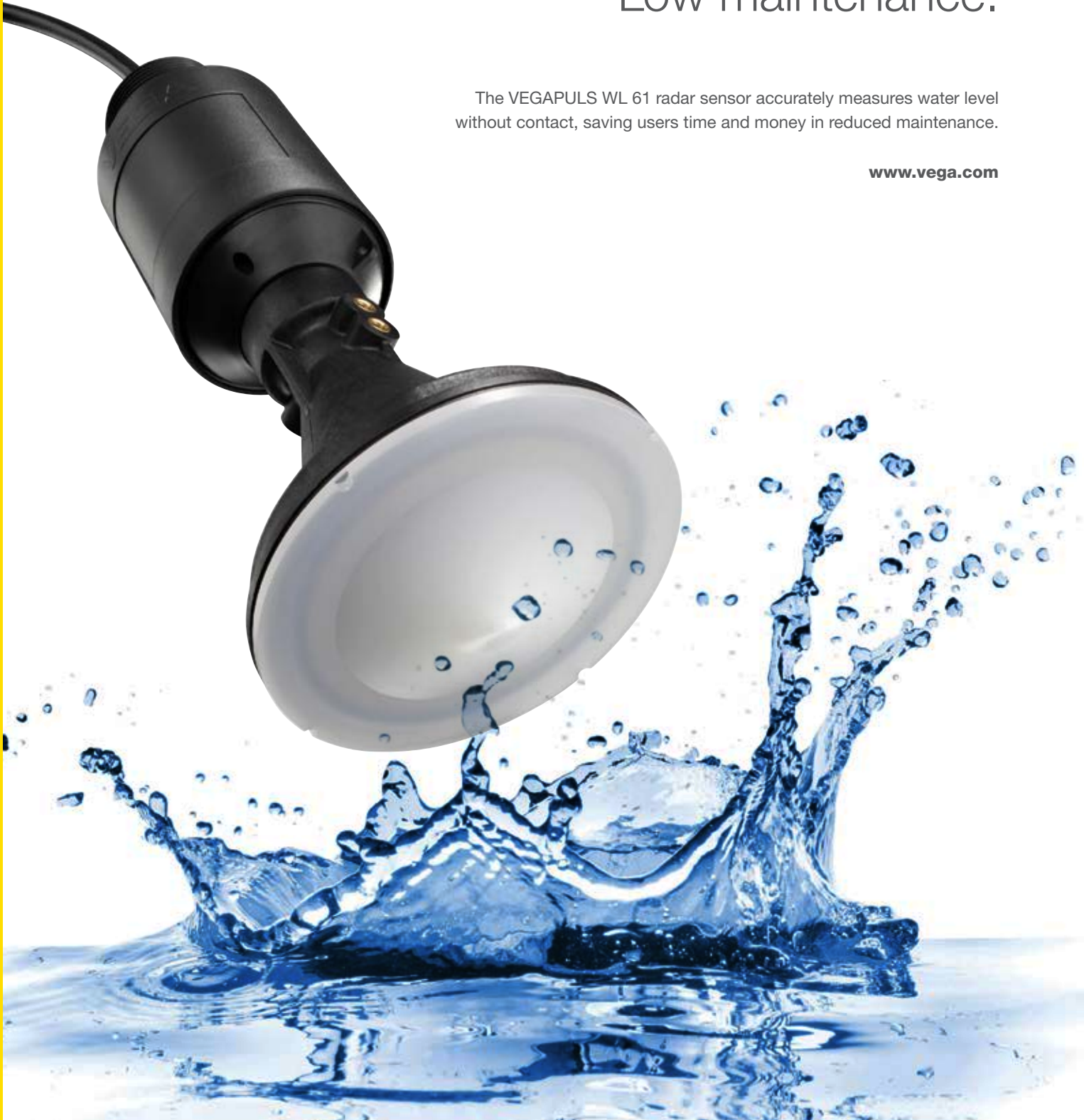
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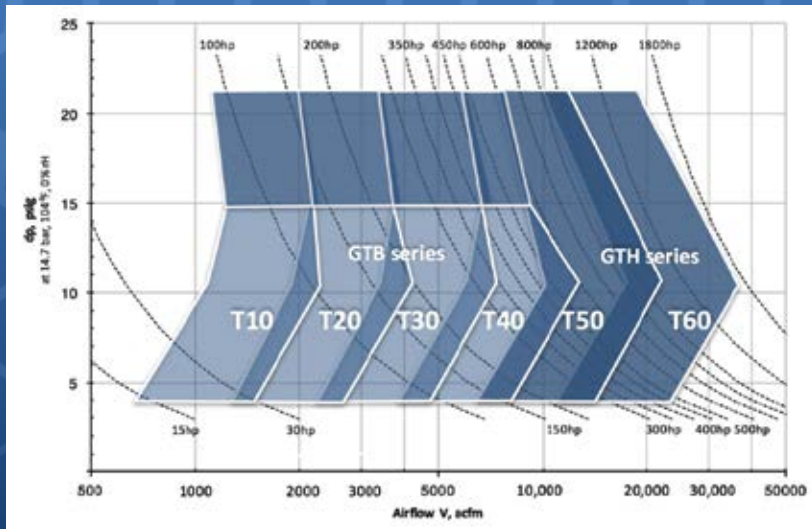
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Jeff Beckman

Fall brings on an exciting WEF season

The fall season is my favorite time of year. It means college football, it means cooler weather, and it also means getting my life back under control. Like many of you, it seems like my family tries to jam many events as possible within the summer months – vacations, reunions, camps, etc. Life tends to get a little out of control. By the time fall comes, I am ready for my kids to go back to school and for the regular routine to return.

With that said, fall also brings some great WEAU events. First is the upcoming WEFTEC that will be held in New Orleans this year. We have two Ops Challenge Teams going to represent WEAU in the Ops Challenge. Good luck to them! Fall is also when we make changes to our WEF Delegates. I'd like

to give a special thanks to Lonni Rasmussen of Cottonwood Improvement District, who finishes his term as one of our Delegates. Lonni has provided many years of service to WEAU and has represented us well in the WEF House of Delegates. We look forward to Lonni's continued service in teaching the WEAU Collection College. Sherry Sheffield of the South Valley Water Reclamation Facility will take Lonni's place and will serve with Mike Foerster this next year as our WEF Delegates. Our Delegates keep us informed of news and changes at the WEF level and give voice as our representatives in discussions about WEF policy and direction.

Another WEAU fall event is the upcoming Mid-Year Conference. The Mid-Year Conference is scheduled for

November 17 and will be held at the Cultural Celebration Center. This event continues to grow. This year, we had a record number of abstract submittals, which appear to break another attendance record. Thanks to Brandon Wyatt and his committee for their hard work in making this a great event each year.

As I wrote this, I realized that it is kind of sad that I look forward to wastewater conferences over summer fun. I guess too much of a good thing can get a little tiring.

Thanks for your participation in the Association. It takes a lot of volunteers and hard work to make these events as good as they are. The 2018 Annual Conference is scheduled for April 9-12 so mark your calendars. I will see you there. [DW](#)

“ Thanks for your participation in the Association. It takes a lot of volunteers and participation to make these events as good as they are. **”**



We are stewards of water in the midst of wildfire season

Chad Burrell



I recently read an article in the Deseret News, written back in July, that highlighted the wildfire fighting efforts that have taken place this year in the State of Utah. This year has been a record breaking year, in a bad way, as far as the number of fires and the cost associated with fighting them. Since July, fires have continued and efforts to contain fires have only increased since July. The article highlighted the following figures. The estimated cost of fighting all these fires

is over \$47 million, with over 115,500 acres burned and 693 individual fires. This has taken a toll on the State and its many people who have lost lives, homes, and property. In all of this I am reminded once more of our dependence on water. We rely greatly on the water that falls in the winter in the form of snow. We rely on rain that falls in the spring, summer, and fall to keep our yards, farms, and mountains watered. That water helps to recharge water tables and fill rivers, lakes, and reservoirs. We have daily contact with

that water in one form or another. The quantity of that water is directly related to the fires through how dry vegetation will become in the hot summer.

In this industry, each of us are stewards of water. We can directly control the quality of the water we treat. Though we can't make it snow, make it rain, and can't control fire, we can put our water back into the environment in a clean form. In a way, we are contributing to the quantity that is available for so many uses. [DWA](#)



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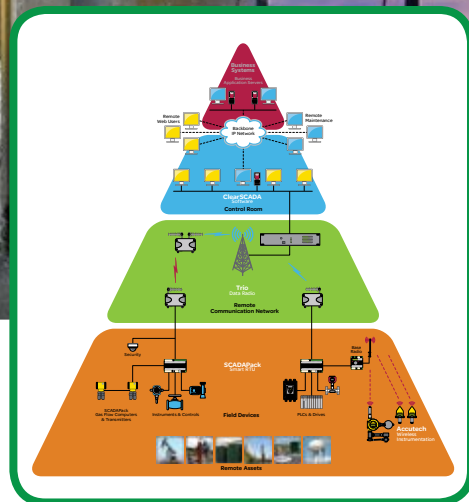
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Are you a professional engineer? It is required that you complete a minimum of 30 hours of professional continuing education within a two-year renewal cycle. The time you spend in sessions at the conference counts toward your continuing education requirement.

REGISTRATION

Please complete registration before October 31, 2018 for the best rates. Registration information is available at www.weau.org. A continental breakfast and lunch are provided as part of the registration.

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| CONFERENCE SCHEDULE | |
|---------------------|--|
| TIME | EVENT |
| 8:00-8:30 | Registration and Continental Breakfast |
| 8:30-10:00 | Morning Sessions |
| 10:00-10:20 | Break |
| 10:20-11:50 | Late Morning Sessions |
| 12:00-1:20 | Lunch and Keynote Speaker |
| 1:30-3:00 | Afternoon Sessions |
| 3:00-3:20 | Break |
| 3:20-4:00 | Late Afternoon Sessions |
| 4:00 | Return Lanyards and Prize Drawing |

| PRELIMINARY TECHNICAL SESSION LISTING | | | |
|--|---|---|---|
| NUTRIENT REMOVAL | WASTEWATER FACILITY PLANNING | OPERATIONS | COLLECTIONS |
| Enhanced Biological Phosphorus Removal (EBPR) With RAS Fermentation for Central Valley Water Reclamation Facility (CVWRF) (Brendan Mackey - University of Utah Civil and Environmental Engineering Department) | How Biological Process Simulation Offers Significant Benefits in Defining the Steps Required to Meet Nutrient Limits (Henryk Melcer - Brown and Caldwell) | Cogeneration Gas System Upgrade (James Magill - Central Valley Water Reclamation) | Lift Station Design Considerations (Mike Kobe - Brown and Caldwell) |
| Treatment Assessment for Reducing Dissolved Organic Nitrogen (DON) in TMWRF Effluent (Kamrun Ahmadi - Stantec) | Investigating Alternative Approaches to the TBPEL (Jeff DenBleyker - Jacobs Engineering) | Test Taking Tips and Techniques (Sharon Burton - CVWRF) | How SVSD Uses Technology to Manage Their Collection System (Mike Foerster - South Valley Sewer District) |
| Long Term Treatment Performance of High Efficiency Sidestream Phosphorus Removal/Recovery System (Mudit Gangal - Ovivo Water) | Case study of PONDUS TCHP Installation in Kenosha Waste Water Treatment Plant (Jerod Swanson - Centrisys/CNP) | NDSD In-House Grit Modifications (Myron Bachman - North Davis Sewer District) | An Integrated Approach for Condition Assessment and Rehabilitation of Large Diameter Sewers (Erez Allouche - Stantec Consulting) |
| BIOSOLIDS/SUSTAINABILITY | | | |
| Biosolids Management Strategies in Utah (Marianna Sochanska - Brown and Caldwell) | Water Quality Standards and Water Quality-Based Effluent Limits (Chris Bittner - Utah Division of Water Quality) | Silica Safety and Compliance for New OSHA Standards (Jason Watterson - Central Valley Water Reclamation Facility) | The Data's Got Your Back: Taking the Guesswork out of Pump Station Performance and Maintenance (Devan Shields - Sunrise Engineering) |
| The Next Generation of Cogeneration at the Central Valley Water Reclamation Facility (Jason Wisner - Brown and Caldwell) | Design of a New Headworks Screening Building for Wellsville Wastewater Lagoon Facility (Kraig Johnson - Wastewater Compliance Systems) | 5 Common Myths about Activated Sludge You Believe (Paul Krauth - Statepoint Engineering) | New Technology for Acoustic Rapid Assessment and Resource Allocation for Sewer Collection Systems (Bob Borden - RH Borden and Company, LLC) |
| PROJECT DELIVERY | | | |
| An Overview of Renewable Identification Numbers and the Low Carbon Fuel Standard (Drury Whitlock - Stantec) | CMAR Case Study for the Mona Wastewater Treatment Facility (David Fagerstrom - ATS Innova) | Do you Know your SRT Right Now? Here's Why you Should. (Steve Myers - Hach) | Modern Bio-Augmentation for Wastewater Collections Systems (Gregory Page - ATS Innova) |
| SAFETY | | | |
| PROCESS CONTROL | | | |
| Safety Culture and the Power of Habit (Brian Child - Olympus Insurance / Granger-Hunter Improvement District) | Orthophosphate Monitoring and Phosphorus Removal Control (Robert Smith - YSI, a Xylem Brand) | Microscopic Biological Surveys (MBS) & Why They Always Matter (Ken Burgener - North Davis Sewer District) | Cured-In-Place Pipe Rehabilitation - Design Components and Environmental Considerations (Bradley Conder - Insituform Technologies, LLC) |

The content of the technical program is subject to change. Check www.weau.org for updates and schedule.

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Man, this year is just flying fast!

By Jeremy Deppe, PWO Rep.
deppej@cvwrf.org

The two challenge teams, Wasatch All Stars and Central Weber Vortex, are hard at work preparing to kick butt at Weftec in New Orleans this September. This year the teams will be competing in five events: Lab, Process, Safety, Collections, and Maintenance. We have a new pump for the maintenance event this year and the teams will use a KSB pump and a pump station filled with water. The teams will need to troubleshoot the electrical control panel, troubleshoot and perform routine maintenance on the KSB submersible pump and wet well, and then ultimately restore the pump station back to normal operating condition. The teams will be running this in a live event. The pump well will be filled with water and they will be dealing with live power, making for an exciting event.

If you have never competed in the Operators Challenge, I highly recommend it. It's a little intimidating and a lot of hard work, but it is all worthwhile in the end: the network of individuals you meet in the places you get to go to and the knowledge you gain make you and everyone around you a better operator in the field and in testing.

There are many ways to get involved. You can compete in the challenge, you can help judge the challenge, or you can put on a presentation at the conferences. The first time I ever got involved was with the awards committee, with people I had never met before. Man, what a great experience! I was part of a team that went around and judged plants for the Safety Award and Operator of the Year Under Five MGD. I never knew there were so many other plants in Utah and they all operated different than my plant. So if you can, you should step out a little and get involved. You will not regret it.


We did a pump maintenance class in June at the Wemco facility. All in all, I think it went really well. We are going to be planning a test preparation class before the test in November. Right now WEAU is gearing up for our Mid Year Conference, which will be held Tuesday, November 13, 2018 at the Utah Cultural Celebration Center in West Valley City, UT. If you are



planning on doing any presentations, please submit your abstracts on the WEAU website (www.weau.org).

Once again I would like to say thanks to everyone who helps the WEAU

throughout the year. We could not do what we do without the help of all you wonderful people.

See ya in New Orleans. 



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Operator Spotlight: Lee Doxey

By Clay Marriott

Lee Doxey is a Grade V Treatment Operator and Grade V Collections Operator at Central Weber Sewer Improvement District.



Lee started working for Plain City Public Works in 2004. He was responsible for their sewer ponds, 15 lift stations, sewer lines, and connection compliance. He enjoyed working with the public and solving any problems that came his way. He was the only person in the Public Works Department at the time and when he had to drop into the bottom of the lift station his wife was the “Safety Supervisor” watching from above. On one occasion the ladder slipped and he took a tumble into a stinky place. This was the last straw for Lee. He started looking for another job. Central Weber offered him a Treatment Operator position shortly after my tumble and the rest is history.

Central Weber has offered Lee a lot of opportunities. Currently, he is on the collection team and the process control team. He enjoys solving problems and identifying ways to improve. Recently, he was given two tasks, to make our sampling techniques more consistent and to improve our de-watering process. Working on each of these tasks has given him a true sense of accomplishment and satisfaction. Working at a sewer plant is not a glamorous job but his fellow employees at Central Weber are awesome, which makes a stinky job enjoyable. Lee has had a few jobs over his career, but he says the one thing that keeps the work place enjoyable is the people who work alongside him. Lee’s proudest moment at Central Weber, to this point, is when he was put on the collection team. He has enjoyed the associations he has made, the tasks he has been given, and the problem-solving opportunities. Lee is a very motivated

individual who loves a good challenge and likes to see how things work. I like the advice he will give to any new hire: remember to open discharge valves before turning on a pump. I don’t know why this would be? Lee started competing in the operations challenge in 2015. Through the competition, he’s had the opportunity to meet sewer people from all over the state. His favorite memory was winning the safety event in New Orleans in 2016.

A very good friend to all he works with, Lee is always looking to help others. He takes great pride in his work and is always trying to improve himself and others around him. Lee is a wonderful father and husband, and his family is what brings him his most joy in life. One thing that people remember Lee by is the fact that he and his wife have 15 wonderful kids. It has been a great opportunity to be a colleague and friend of Lee Doxey. He makes work enjoyable and always works hard. [DA](#)

“ Lee has had a few jobs over his career, but he says the one thing that keeps the work place enjoyable is the people who work alongside him.

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Avoiding SNC from PH Violations

By Brett Nelson



Unlike other regulated parameters, the ease and speed of pH monitoring allows users multiple strategies for avoiding SNC and mandatory fines caused by having more than 33% of their samples out of compliance during a six-month period. This is a ratio that you can and should monitor yourself for all your regulated pollutants.

We recommend the following strategies to maintain an accurate accounting of this percentage and assist in avoiding SNC for pH based on this measure.

Read Lab Reports Promptly

Check with your laboratory and ask them to report pH monitoring results to you immediately. In the case of pH monitoring, your laboratory should be determining the pH of your facilities effluent at the time they are collecting samples.

Don't forget that if your pH sample is not in compliance with your permit limits you must:

Resample when out of compliance

Your permit requires you to resample when any parameter is out of compliance and then show the return to compliance. For pH, this resample can happen as soon as 15 minutes after the previous sample. Once a pH sample has shown a return to compliance, you have met this requirement, but you may still be in SNC based on your percentage of noncompliant samples.

If you find that you still have more than 33% of your samples out of compliance you must:

Take More Samples

Bring the percentage of noncompliant samples down by increasing the number of compliant samples analyzed. Your permit requirements specify a minimum frequency at which you must sample for compliance. It may be in your best interest to sample more frequently than the permit requires. Remember, you can sample for pH as often as every 15 minutes.

As an alternative to taking grab samples to determine effluent pH you may want to:

Consider Continuous Monitoring

Continuous monitoring can greatly reduce the likelihood of SNC for pH. The definition of SNC is the same for grab sample and continuous pH monitoring; however, with continuous monitoring, your percentage of samples out of compliance is determined by dividing the amount of time out of compliance by the total time pH was monitored (for example, for a user monitoring continuously over the first six months of a year, SNC is only reached if pH is out of compliance for 1444 hours).

Remember, that you are always required to meet the minimum monitoring frequency requirements in your permit. To be sure that you are prepared in the event that a continuous pH monitor fails, you should have a contingency plan in place for the collection of grab samples. [DM](#)

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Young WEF Award Winners

Tulsa, Okla. High School Student Wins US Stockholm Junior Water Prize Will Represent the US in International Competition

ALEXANDRIA, VA – The Water Environment Federation (WEF) proudly announces that Braden Milford has won the 2018 U.S. Stockholm Junior Water Prize (SJWP), the nation's most prestigious youth competition for water-related research.

Milford, a student at Cascia Hall Preparatory School in Tulsa, OK, developed a system using naturally occurring bacteria to remove heavy metals from contaminated abandoned mine sites. He won \$10,000 and an all-expenses paid trip to Stockholm to represent the US at the international competition in late August.

Students from 47 states and Puerto Rico competed in the national finals June 16-17 at the University of North Carolina at Charlotte. The Stockholm Junior Water Prize aims to increase student interest in water issues, research, and careers, and raise awareness about global water challenges. The competition is open to projects focused on improving water quality, water resource management, water protection, and drinking water and wastewater treatment.

The two US runners-up were Anjali Chadha of DuPont Manual High School

“The inventive approaches these students use to tackle longstanding issues facing the water sector are both impressive and inspiring.”

in Louisville, KY, and Michelle Xing of Great Neck South High School in Lake Success, NY, who each received \$1,000. Madeline Kane of the Zoo Academy in Omaha, NE, received the Bjorn von Euler Innovation in Water Scholarship Award from Xylem Inc. Helen Laird of Interior District Education of Alaska received the James L. Condon Recognition for Environmental Stewardship.

“WEF is proud to support and encourage these young researchers who have chosen to use their talents and energy to develop solutions to protect and preserve our water resources,” said Eileen O’Neill, WEF Executive Director. “The inventive approaches these students use to tackle longstanding issues facing the water sector are both impressive and inspiring.”

In his winning paper, *Designing a Novel Heavy Metal Bioremediation System Utilizing Immobilized Algae Partnered with Heavy Metal Resistant*

Microbial Isolates Collected From Contaminated Superfund Mine Sites and Identified with a 16S Ribosomal Subunit Analysis, Milford noted that heavy metal contamination is found at nearly every one of the estimated 500,000 abandoned mine sites in the United States. Of these mine sites, 0.003% are actively funded for cleanup by the U.S. Environmental Protection Agency and cost \$300 million annually. Milford used a five-phase approach to address this problem. After identifying areas of heavy metal concentration along streams near abandoned mine sites and taking samples of the water, Milford identified heavy metal-resistant bacteria. He then combined the bacteria with algae to develop a heavy metal remediation system.

In the US, WEF and its Member Associations organize the regional, state, and national competitions with support from Xylem Inc., which sponsors the international competition. [D1](#)

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Katherine Saltzman

Water Workforce Development

Newly Released Policy Report Focuses on Obstacles, Innovations, and Plans

Researchers at the Brookings Institute (Washington, DC), a bipartisan policy think-tank, published a report focusing on establishing robust water workforce development programs to accommodate modern water infrastructure needs.

The report, *Renewing the Water Workforce: Improving Water Infrastructure and Creating a Pipeline to Opportunity*, addresses the unique employment opportunities available in water sector jobs and the high and urgent demand for these employees across the US.

The report highlights the diverse opportunities and employment options in the water sector. In 2016, the water sector included 212 different occupations ranging from operators and construction workers to administrative and managerial roles. Employees in water occupations, on average, earn higher wages compared to all workers nationally; water employees may earn up to 50% more compared to workers at lower ends of the income scale. In the tenth and twenty-fifth income percentile, water workers earn hourly wages of \$14.01 and \$17.67, respectively “compared to the hourly wages of \$9.27 and \$11.60 earned by all workers at these percentiles across the country,” according to the Brookings report.

As income inequality in the US continues to rise – especially between populations with university degrees and those without, researchers note – the water sector can offer good-paying jobs. Water sector jobs require rigorous hands-on training and application of STEM skills and project management; this flexibility, offers individuals with otherwise-limited formal education sustainable incomes.

Finding the Right Fit

Despite the long-term economic and educational opportunities available in the water sector, there are obstacles with finding and retaining talent. In 2016, research showed that employees in “water occupations are significantly older than the national median (which is 42.2 years), including water treatment operators (46.4 years old), the report says. Utilities and municipalities across the country are concerned about retirement rates and limited pools of trained candidates entering the water sector.

Water utility leaders, municipalities, and associations are finding innovative ways to engage and attract young people to opportunities available in the water sector.

Pipeline to the Water Sector

Researchers found the water sector lacks the public visibility needed to attract individuals to the water workforce. Despite lower education barriers and stable, good-paying jobs, there are not enough people pursuing water jobs or gaining the necessary skills or training to obtain careers in the water sector.

According to researchers, though internships or apprenticeships are being used to recruit younger and more diverse employees, these programs may be limited by budget shortages and/or the need to retrain students in basic math, science, and English skills, which are not necessarily taught in high school. It is also important to note that inadequate newcomers to the water sector also may be part of a “general shift away from the skilled trades and vocational education among students, which is compounded by the many existing water workers nearing or eligible for retirement,” according to the Brookings report.

Based on communication with utility managers and other stakeholders, researchers recommended a more collaborative effort among utilities, municipalities, government agencies, and policymakers to invest in and prioritize water workforce development programs to enhance the visibility and attractiveness of the sector. Plans to increase water workforce outreach programs include hiring and training diverse mentors. These mentors can connect with younger individuals, revitalize the recruiting process, and serve as a long-term guidance counselors for students in water-related internship or fellowship programs.

Other ideas include acquiring funding from federal and state policymakers to establish ‘bridge programs’ and educational initiatives to provide opportunities for younger workers or adult students to explore water careers and gain experience.

Retention and Long-Term Employees

There are financial and programmatic obstacles to developing workforce programs when water utilities also must finance infrastructure repair and investment. Utilities also face budget cutbacks and need to remain conscious of ratepayers’ bills. In these cases, utilities may prioritize infrastructure improvements rather than workforce development programs. Though infrastructure investment is critical to maintaining water quality, limited funding for workforce development can lead to shortcomings in career advancement and earnings for water sector employees.

Some smaller utilities, for example, may have one or two employees with no supervisory role. In this situation, workers who have held the same role at a utility for several decades may seek other opportunities at a larger utility or consulting group. Meanwhile, trends indicate that younger workers prefer opportunities to diversify and have mobility in their careers. This leaves a significant gap in skilled workers available to run the critical daily operations at the utility.

“To have a team manage the water infrastructure, in water emergencies but also day-to-day operations is really vital.” said

Keisha Powell, commissioner of the Department of Watershed Management for the City of Atlanta, at a panel discussion following the release of the Brooking's report. "We have reached 130 water main breaks in the month of January and are facing a 55% eligibility retirement rate. Further, it is difficult to recruit young talent."

Researchers and stakeholders concluded that by increasing training for supervisory roles, developing income tiers for more experienced employees, and creating more established career paths utilities could better retain skilled employees and create workforce advancement opportunities in the water sector.

Programs Related to Workforce Development and Training

Several utilities, national agencies, municipalities, and nonprofit organizations are taking on the task to provide tools and programing to enhance recruitment and training.

This spring, WEF in collaboration with DC Water, launched the This program is a national certification standard for green infrastructure construction, inspection, and maintenance employees. To earn the certification, students with a high-school degree must complete 35 hours of course material and pass an exam. NGICP supports the development of proficient green workforces, and establishes a career path for skilled green infrastructure workers.

The 2013 *PowerCorpsPHL* initiative by the City of Philadelphia Americorp engages at-risk young adults and returning, formally incarcerated citizens, to enroll full-time in the program and work to support Philadelphia's environmental stewardship, youth violence prevention, and workforce development priorities. PowerCorpsPHL student crews work with the Philadelphia Parks and Recreation Department as well as the Philadelphia Water Department to improve stormwater management and revitalize public lands and parks. Students spend five months working and one month dedicated to career training. Students also can apply to a fellowship program that matches them with an external partner for additional environmental career experiences.

In 2008, amid concerns in the San Francisco Bay area regarding lack of water workforce development programs at local utilities, several water and wastewater utilities collaborated to develop This program's mission is to "develop and implement programs and strategies that support development of high-performance workforces." Bay Work's resources are open to all bay-area water and wastewater utilities. The program also provides opportunities for utilities to share research, ideas, programs, and concerns related to workforce issues. Bay Work also provides extensive job and internship listings and training schedules for those interested in the water sector.

These initiatives are some examples of the workforce development training necessary to bring public visibility to the water sector and green infrastructure jobs, while also offering critical preparation and training for diverse and skilled individuals to enter and find long-term careers in the water workforce. As highlighted in the Brooking report, continued collaborative workforce development programs can address the needs of water infrastructure and the water sector while also supporting greater and more stable economic opportunities for US communities. [D&A](#)

Katherine Saltzman is a publications assistant at the Water Environment Federation (Alexandria, VA) where she works on WEF's Operator Initiative programs.



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How to be a Hero in the Water Sector

Author to speak at the WEFTEC® Opening General Session

The water sector is full of everyday heroes. At the WEFTEC® 2018 in New Orleans, the Opening General Session keynote speaker will share his vision for increasing the ranks. Kevin Brown, a motivational speaker and author of the book, *The HERO Effect*, will share his ideas, strategies, and principles to inspire water professionals to recognize and embrace being the everyday heroes who show up and give their best when it matters the most.

In this Q&A, Brown shared aspects of his message as well as his hopes for what WEFTEC attendees will take away.

Q: Your speech during the Opening General Session will focus on *The Hero Effect*. Can you summarize for us what exactly you mean by ‘The Hero Effect’ and how it differs from the conventional understanding of being a ‘hero’?

A: ‘The Hero Effect’ is a shift in the conventional way of thinking about heroes. Traditional thinking suggests that heroes are ordinary people who do extraordinary things. What I have discovered on this journey is that heroes and high performers are anything but ordinary. Ordinary is a learned behavior.

Think about this: if heroes are ordinary people doing extraordinary things then by default we give ourselves permission to be ordinary most of the time with only the occasional burst of extraordinary. The Hero Effect is about what happens when extraordinary people choose not to be ordinary.

The Hero Effect is comprised of four principles.

- **Heroes help people with no strings attached.** They go ‘all-in’ every time they take the field. They understand that both business



Kevin Brown is a motivational speaker and author of the book, *The HERO Effect*. He will deliver the keynote address for the Opening General Session at WEFTEC® 2018 in New Orleans on October 1.
Photo credit: Kevin Brown

“If you could be Superman all the time why would you ever choose to be Clark Kent?”

and life are always personal and never perfect. Heroes create strong connections and reach beyond the borders of transactional thinking to create transformational moments.

- **Heroes create an exceptional experience.** The hero's calling card is pure excellence. It's about using their talents, gifts, and abilities to their fullest potential and highest purpose. The hero uses the best of who they are to serve more people, more often, in bigger and better ways. The hero is committed to personal development and shows up better today than they were yesterday. Heroes build trust by serving others with an authentic passion that turns everyday moments into superhuman experiences. The hero is driven to serve others and understands that the greatest rewards in life are determined by how well we take care of the people we live and work with.
- **Heroes take responsibility;** heroes own the moments that matter. They are actively present and engaged and do not believe in random acts of kindness. The hero is motivated instead by intentional acts of difference making. They live by a simple code: 'bring your best stuff to the present moment and pour it into the lives of others.' They understand that before you can lead anyone else, you must first be able to lead yourself. The hero owns their attitude, their actions, and their results. They are committed to the best possible outcome in every situation regardless of circumstances or events beyond their control. The hero leads by example and knows that true success is found in the power of simple choices.
- **Heroes live and work with optimism;** heroes see the world differently. For them, it's not about positive thinking, it's about perspective. Looking through the lens of optimism gives the hero supernatural vision. They see what others cannot. They see opportunities instead of obstacles, possibilities instead of problems. When things go wrong – and they will – optimism is what helps the hero turn life's messes into a masterpiece.

Participants will learn how to achieve greater results by eliminating 'ordinary' thinking and mastering the habit of excellence: how to own the moments that matter (and they all matter) by taking responsibility for their attitude, their actions and their results, and how to create meaningful relationships and deliver an extraordinary experience for every 'customer' at work and at home.

Q: What is your background and how does it relate to you becoming a hero?

A: My life is truly the hero's journey. I wouldn't be here today if not for the heroes that poured themselves unselfishly into my life. Moving me from a place of desperation to a place of inspiration. My gift back to them is becoming the best version of myself and bringing that to the people I live and work with every day. That is everyone's responsibility in life.

I had a pretty unconventional path to where I am today. I grew up in Muskegon, MI, where my blue-collar roots taught me the value of hard work and determination. My resume includes an eclectic mix of career stops that ultimately led me to the purchase of a franchise at the age of seventeen.

With a lot of help from mentors and friends, I was able to work my way from the front lines in business to the executive boardroom. For nearly two decades I was a sales and marketing executive that helped grow a little-known family business [SERVPRO (Gallatin, TN), a cleanup and restoration company] into the number one brand in the industry with annual revenues reaching two billion dollars.

After a career in franchising that spanned more than 30 years, I decided to retire from corporate America and pursue my passion for bringing The Hero Effect to as many people and organizations as possible.

Q: Were you able to apply The Hero Effect in your own professional life at SERVPRO?

A: As a leader, I believe we have an obligation to the people around us to create an environment where people can be the best version of themselves.

My passion is to embrace a simple philosophy that separates world class organizations and high-performance people from everybody else. That philosophy is The Hero Effect.

My great obsession in business and in life is to help people expand their vision, develop their potential, and grow their results. In addition, as the father of a child with autism, I know firsthand how the principles of true success reach beyond the boardroom and into the lives of real people facing the challenges of everyday life.

The Hero Effect transformed me as a leader, father, husband, friend, and fellow human. It completely changed the trajectory of my career and embodies the essence of true success and genuine leadership.

Q: What are the usual obstacles or “kryptonite” as you term it in your book, that people encounter in becoming a hero? How do they overcome these obstacles?

A: First of all, being a hero is about being your best when it matters the most. The gold standard for what it means to be a hero can be found in our military men and women, first responders, and people from all walks of life who operate at a higher level. Being your best when it matters the most requires a commitment to yourself and the people around you. It takes work.

It's easy to be your best when everything is going well. But when the tough times come, that's when it gets hard. To be your best when you don't feel like it. To be your best when others may or may not deserve it. To be your best when you're tired, sick, frustrated... heroes and high performers always show up and deliver the goods.

Always.

The single most destructive force on the planet is a decision to be ordinary. To deprive the world of all that you were put on this planet to be – to rob yourself and the people around you from your greatest contribution. Think about it. Superman spent most of his time disguised as an ordinary person. As a child I remember thinking, if you could be Superman all the time why would you ever choose to be Clark Kent?

Q: Are there any famous examples that you would say is a good representation of a hero, as you would define it?

“Bring your best stuff to the present moment and pour it into the lives of others.”

A: Our military men and women. First responders. The world changers like Mandela, Martin Luther King, Jr. and Mother Teresa. You can look around and see examples in every area of endeavor – including business, entertainment, communities, and families. It’s the people and organizations that we pull out of the pile and separate from everyone else. We deem them as different, special.

When they show up to do what they do they operate at a level most people don’t even aspire to. They show up every time with their best stuff and pour it into the lives of others.

Q: Why do you think it’s important for those involved in the water sector understand The Hero Effect? How can they apply it in their respective fields?

A: Because if they don’t bring their best when it matters the most, bad things happen. The communities and people they serve get hurt. Every living thing on the face of this earth depends on their ability to execute at a high level. To create, innovate, and find solutions to problems that impact our most precious and powerful resource.

How can they apply it? That’s a great question and I cannot wait to answer that during my keynote address. We are going to have a great time and I assure you I am unlike any speaker they have ever heard. I will deliver a life message with powerful business implications.

Q: What do you hope attendees at WEFTEC take away from your talk?

A: My most sincere desire is that they will see the heroes around them and develop the one within themselves. If ever there was a time that our world needed heroes at work and at home, it’s now. The ideas I am going to share have changed the course of my life forever and I can’t wait to share them with all of you. [DM](#)

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Hurricane-Force Performance as New Screen Lives Up to Recommendations in Utah

In a Utah facility that has seven wastewater treatment lagoons treating 1.5 MGD and over 300 acres of farmland, a new screen has immediately improved aerator reliability, with an added benefit of significantly improved system aesthetics.

Constructed in the early eighties, the lagoons transitioned over the course of the next 20 years from facultative to aerobic lagoons, with the installation of surface-mounted aerators. Due to the increasing use and disposal of wet wipes ('flushable' or 'non-flushable'), Ash Creek Special Service District regularly struggled with mechanical breakdowns in their lagoon aeration system. An accumulation of wipes and rags would become bound around the aerator drive shafts, reducing performance until the motor became completely bound, resulting in an over-amp fault. A grinder installed for the purpose of shredding the rags proved ineffective, because shredded rags and wipes recombined in the lagoon mixing areas and re-emerged as chords and ropes of the residual debris. Frustrated personnel at Ash Creek Special Service District (which serves the towns of Hurricane, La Verkin, and Toquerville) were spending excessive amounts of time on maintenance, while aeration performance in the lagoons was regularly impaired.

District staff began a process of site visits to wastewater plants in the area, requesting feedback from system operators on their satisfaction with screening performance at their facility. Simultaneously, staff began identifying key requirements for the screening system that they would ultimately like to see implemented at the District's facility.

These requirements included a very high capture efficiency, a full penetration cleaning mechanism to eliminate the possibility of screen blinding, and a single integral screening/washer/compactor unit.

"We quizzed local engineers about perceived strengths of various screen types that they had seen implemented in facilities like ours," reflected Mike Chandler, District Superintendent.

"That information, coupled with a strong endorsement from a neighbouring facility pointed us in the direction of the inclined basket screen, and more specifically, Lakeside's Raptor Fine Screen."

'Reduced disposal costs'

Benefits of this screen include increased removal efficiency and low headloss – brought about by its cylindrical screenings basket, angled installation, and screen bars of varied heights. Inorganic solids that can be harmful to downstream equipment are securely captured. The screen's rotating rake teeth fully penetrate the cylindrical screen bars, positively removing debris and grease to prevent blinding or plugging. Also suitable for septage receiving, sludge, scum and grease trap applications, the screen's heavy-duty design provides durability and long life in the most severe conditions. Captured screenings are compacted, dewatered, and washed free of most organics to approximately 40% solids. Volume is reduced by 50% and weight by 67%, thus reducing disposal costs.

Together, Ash Creek's personnel worked with Lakeside's Jim Aitkenhead and his team of engineers to design an influent receiving box and control structure that could be easily provided by a local supplier of pre-cast concrete structures.


One month ahead of the arrival of the all-stainless steel Lakeside Raptor Screen, the team at Ash Creek installed the control structure and screening channel, erected an electrical building and non-potable water air-gap tank for the screening washdown nozzles, and installed a screening structure wash-down hose bib. Ash Creek's operators later installed the supplied fully assembled screen and worked alongside Lakeside during final commissioning.

When the upstream water level rises to a high level set point, the Raptor Screen's rake arm begins to rotate for removal of the captured material. After the rake arm makes a complete revolution, material falls into a collection trough. For complete cleaning, the rake arm reverses direction at the top of the screenings basket and passes through a hinged cleaning comb. The debris is removed from the collection trough by a central screw conveyor. The conveyed material travels up the inclined transport tube where the material is washed, compacted, and dewatered prior to being discharged into a debris container.



Made in the USA, the Raptor Screen's hinged structural support allows the unit to pivot out of channel for inspection at floor level, whilst its simple drive assembly also makes service easy and further reduces maintenance costs.

'Trouble-free'

"We made a minor adjustment on the new screen's control floats," continued Mike Chandler, "and the Lakeside Raptor has run totally trouble-free. The amount of rags and debris it removes has surprised us all here at Ash Creek. The washed and compacted screenings are also very low on odor, which has been a bonus." He concluded: "Overall, we can see what a tough and well-designed piece of equipment this is from Lakeside, who have clearly earned the recommendations we received from happy plant operators." 

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Whatever Floats Your Goat:

Goats at Ash Creek Special Service District



It's not every day that you see goats at a wastewater treatment plant, but at Ash Creek Special Service District, there are over 400 of them – and they certainly earn their keep.

The ever-increasing awareness of the general public requires more careful stewardship of environmental resources. Typically, careful attention to public health would require that in addition to treating and disposing of wastewater that a treatment entity not create any new nuisance in the process. A common challenge for wastewater professionals

is eliminating the threat of secondary pathogen carriers – namely, mosquitoes. In addition to effectively treating wastewater, staff at the District has made a conscious effort to reduce the amount of insecticide and herbicide used in eliminating the threat of mosquitoes. On the banks of the seven-lagoon system, the goats are put to work eliminating all shore line vegetation necessary for completion of the mosquito lifecycle, saving Ash Creek around \$20,000 in chemical costs annually.

Raised by the district's farm manager, Kim Spendlove, the goats graze freely in pastures between the lagoons and on the 300-plus acres of farmland maintained by the District. Natural birthing in the pastures maintains numbers to 175 nannies, with about 250 goats sold on the market each February, bringing in close to \$20,000 in additional income.

All effluent from the treatment lagoons is used to irrigate 300 acres of crops, which include alfalfa, oats, and triticale, which is another critical source of operating income for the District. [D&A](#)



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Back to School

By Lonni Rasmussen

1. What attracts roots to grow towards sewer pipes?
2. How can roots be stopped during pipe installation?
3. NPDES stands for?
4. The typical per capita flow is how many gallons per person?
5. Inflow is:
6. Infiltration is:
7. Most surface floats travel ____ to ____ % faster than the average flow.
7. A Diurnal (day/night) graph will show?
8. Inverted syphons are placed when?
9. $V = \frac{1.486 R^{2/3} S^{1/2}}{n}$
This formula is known as _____ equation.

ANSWERS:

1. Water Vapor
2. Use Vapor-tight pipe joints
3. National Discharge Elimination System
4. 75 to 100 gallons
5. Surface water entering the collection system
6. Ground water entering the collection system
7. 10 to 15% faster
8. Flow vs. Time
9. The sewer must go under an immovable object
10. Manning's



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Know Your Microbiology

1. **A typical human body has approximately how many bacteria cells on or in it?**
 - A. 10 million
 - B. 10 billion
 - C. 10 trillion
 - D. 10 quadrillion
2. **A round shaped bacteria is known as _____?**
 - A. Bacillus
 - B. Coccus
 - C. Eukaryotic
 - D. Prokaryotic
3. **Bacteria that use H⁺ ions as their electron acceptor are _____?**
 - A. Autotrophic
 - B. Heterotrophic
 - C. Obligate Aerobes
 - D. Obligate Anaerobes
4. **If the bacteria net synthesis is greater than zero which phase is the bacteria in?**
 - A. Lag
 - B. Log
 - C. Stationary
 - D. Endogenous
5. **A substance that participates in a chemical reaction, but is not used up by that reaction is a _____?**
 - A. Catalyst
 - B. Inhibitor
 - C. Reactant
 - D. Product
6. **The hair like structures on the outside of some bacteria that can be used for attachment are called _____?**
 - A. Cilia
 - B. Flagellum
 - C. Glycocalyx
 - D. Pilus
7. **The outside of most bacteria is coated with _____?**
 - A. Carbohydrates
 - B. EPS
 - C. Lipids
 - D. RNA
8. **If a waste contains BOD - 250 mg/L TKN - 10 mg/L and TP - 3 mg/L The bacteria growing on the waste are said to be _____?**
 - A. Carbon Deficient
 - B. Nitrogen Deficient
 - C. Phosphorus Deficient
 - D. Fine, no nutrient issues
9. **If a waste contains BOD - 250 mg/L TKN - 10 mg/L and TP - 3 mg/L The filamentous bacteria most likely seen will be _____?**
 - A. Nocardia
 - B. Microthrix Parvicella
 - C. Type 1863
 - D. Type 021N
10. **Which filament is most likely to cause foaming in the fall?**
 - A. Microthrix Parvicella
 - B. Norcardia
 - C. Nostocoida Limicola
 - D. Sphaerotilus Natans

ANSWERS:

1.C, 2.B, 3.D, 4.A, 5.A, 6.D, 7.B, 8.B, 9.D, 10.A

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Waste Water Process Questions

By Jeremy Deppe

1. **Bio solids dryers can pose a fire or explosion hazard. This hazard can be reduced by keeping the dryer temperature less than _____?**
 - A. 1000 degrees Celsius
 - B. 100 degrees Celsius
 - C. 100 degrees Fahrenheit
 - D. 1000 degrees Fahrenheit
2. **Which of the following should be considered before beginning to transport bio solids?**
 - A. Make sure the state police have first been notified
 - B. Determine the shortest route to the application site
 - C. Make sure the truck is a color that is highly visible
 - D. Ensure safe truck entrance and exit locations are used at this site
3. **What is the most significant safety risk around liquid bio solids storage lagoons?**
 - A. Getting your shoes dirty
 - B. Inhaling bio aerosols
 - C. Drowning
 - D. Being exposed to pathogens
4. **In order to respond to questions, should a spill occur where no other project staff is available, each transport vehicle should have?**
 - A. Material Safety Data Sheet
 - B. Certified proof of insurance
 - C. Registration card
 - D. A notecard with facility contacts
5. **At a minimum, persons involved with sample collection should be immunized against?**
 - A. Mumps
 - B. Tetanus
 - C. Typhoid
 - D. Smallpox
6. **To prevent blocked discharge lines from rupturing, progressive cavity pumps must have the following?**
 - A. Solenoid valve
 - B. Flow switch
 - C. Pressure safety valve
 - D. Pulsation dampener
7. **What color is ground wire?**
 - A. Yellow
 - B. Black
 - C. Green
 - D. Blue
8. **If Class B bio solids are land applied to public a public access site, how long must one restrict access to the site?**
 - A. 20 months
 - B. 1 year
 - C. 30 days
 - D. 38 months
9. **What is the livestock grazing restriction period after Class B bio solids have been land applied?**
 - A. 30 days
 - B. 14 months
 - C. 20 months
 - D. 1 year
10. **What is the minimum buffer required by the 503 rule?**
 - A. 10 meters
 - B. 33 meters
 - C. 10 yards
 - D. 33 yards

ANSWERS:

1.D, 2.D, 3.C, 4.A, 5.B, 6.C, 7.C, 8.B, 9.A, 10.A

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The Buzz: Young Professionals attend Salt Lake Bees baseball game

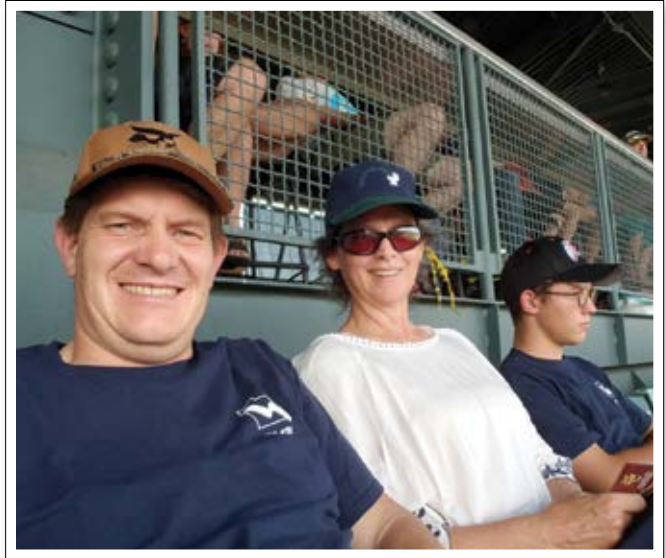
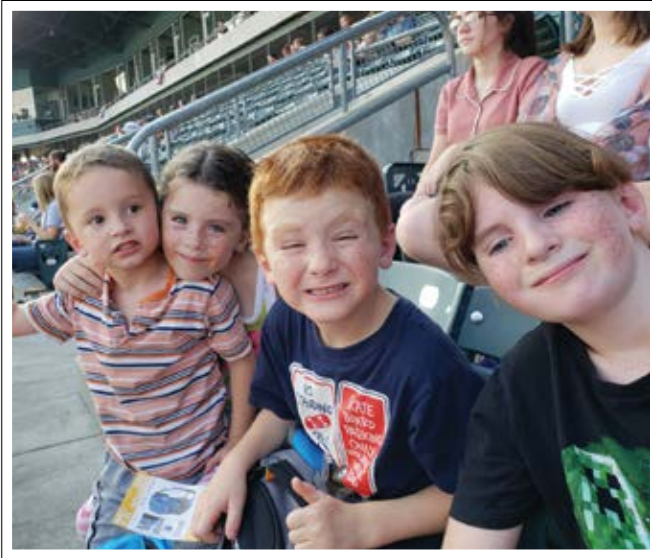
WEAU members got together Friday, July 27 to catch the annual Salt Lake Bees baseball game. We had a great turnout with 159 WEAU members and guests – we grow in numbers every year (thank you for your support). The Bees provided a private deck complete with burgers and dogs overlooking third base

with seats located right below. Everyone was treated to a good game with fireworks afterwards. Before the game WEAU held a raffle with close to \$2,000 in prizes. Congratulations to the lucky winners!

Hope to see everyone out next year and at future events. Sign up for the WEAU mailing list by sending an email

to membership@weau.org and stay in the loop. WEAU Young Professionals and Students Group (YPs) also have an email newsletter, sign up by emailing ypweau@gmail.com.

Big thanks to the Young Professionals Committee for organizing and running the show! 



NOTICE

The YP committee is holding a dinner following the mid-year conference at 5 pm at Red Robin (3601 2700 W B152, West Valley City, UT 84119).

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Available to water quality professionals with five years or less work experience in the industry and who are under 35. This program is available only to new member applicants and WEF Student members. Valid for three consecutive years of WEF membership.

For more information, or to join WEF, visit: www.wef.org/JoinWEF
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call: 1-800-666-0206.



WEAU Collections College

Fall 2018 Class Schedule

WEAU Collections College Fall 2018 Class Schedule

| Date | Chapter | Tests |
|------------------------|---------|--|
| August 15 | | Math Review Packet |
| August 22 | 1 & 2 | Chapter 1 & 2 B Math 1, A Math 2 |
| August 29 | 3 & 11 | Chapter 3 & 11 B Math 2, A Math 4 |
| September 5 | 4 | Chapter 4 & B Math 4, A Math 5 |
| September 12 | | Fall Break – No Class |
| September 21 (Friday) | 5 & 6 | Chapter 5 & 6, B Math 5, A Math 6 |
| September 26 | 8 | Chapter 8, B Math 6, A Math 7 |
| October 3 | | WEFTEC Break – No Class |
| October 10 | 9 | Chapter 9, B Math 7, A Math 8 Turn in test application to DEQ |
| October 17 | 10 | Chapter 10, B Math 8, Mini Review |
| October 24 | 12 | Chapter 12, Adv. Practice problems |
| October 31 | 13 & 14 | Chapter 13 & 14, 100 question test, UVU |
| November 7 | | Last second questions |
| November 15 (Thursday) | | Test (<i>Good Luck</i>) |

Read the Sacramento Ken Kerri manuals *Operation and Maintenance of Wastewater Collection Systems*, 8th Edition Volume 1 and 7th Edition Volume 2. The manuals are available for purchase on www.owp.csus.edu/courses/wastewater.php. Do the chapter tests as you read (for example, by August 22 class you should have read chapters 1 & 2 and finished the test).

Classes are held at Cottonwood Imp Dist. 8620 South Highland Drive (2000 East) Sandy Utah, 84093. Classes start at 12:30 pm and go until 3:30 pm. Along with the chapter test, you will get two sets of math sheets each week. The beginning math (B Math) series is for people just starting out and taking the grade 1 or 2 test. The advanced math (A Math) is for people who have taken the grade 1 or 2 test and need

training for the grade 3 or 4 test. There is no cost for the class, but a contribution of a ream of paper per student is appreciated, it will be given it back as handouts.

Taking this class does not guarantee you will pass the test. The more you study outside of class the better your chances are of passing. You can call Lonni at 801-943-7671 (at work) or at 801-410-6378 (at home between after hours and 10 pm) with questions. [DM](#)

Utah Companies Adopt ESOP



Orem, Utah August 1, 2018:

Mountainland Supply Company and Contractors Heating & Cooling Supply formed an Employee Stock Ownership Plan (ESOP). This transaction strengthened Mountainland Supply and Contractors Heating & Cooling Supply position in the marketplace to support the growing demand of their intermountain customer base. The transaction includes a fully funded ESOP program for over 400 employees that currently occupy 20 locations throughout Utah and now Wyoming.

Mountainland Supply Company and Contractors Heating & Cooling Supply started business in 1947 as Provo Plumbing and Heating Supply, Inc. in the bustling postwar downtown of Provo, Utah.

Today, the company's activities comprise the wholesale distribution of high-quality products from manufacturers for pipe, valves, fittings, plumbing and appliance supplies, heating and air conditioning, hydronics, radiant heating, waterworks, turf and agricultural irrigation, geo textiles, pump systems, and smart water and gas reading systems for our local cities.

Mountainland and Contractors continues to be an independently

operated, and now employee owned, leader in the marketplace. Research has proven over and over that employee ownership builds successful, competitive companies, and creates equitable wealth for employees by offering better wages, benefits, and often twice the retirement income for employees than non-ESOP companies. With a strong culture of engaged employee-owners, a robust sales & marketing strategy, and forward-thinking vision, Mountainland and Contractors are poised for a bright and successful future.

For additional information, please visit mountainlandsupply.com or cbcs-ut.com. [DM](#)

Common Myths in Activated Sludge

Operating an activated sludge plant is both a science and an art. Similar to the old game of telephone (word of mouth) you played as a kid, most of the operating knowledge is passed down to new operators from existing plant staff. The fun of the childhood game was seeing how much the message changed after going through 10 or more kids. A similar thing happens with the operation ideas of activated sludge plants. As they are passed down, the original message may be lost. There are lots of operating ideas (myths if you will) that are not quite right. With apologies to Dr. Richard Dick and Dr. Eric Wahlberg, who coined the phrase Myths in Activated Sludge, here are some common ideas that are wrong:

1. Changing the Return Activated Sludge (RAS) rate changes – the SRT and MLSS concentration

Well, yes and no.

Solids Retention Time is defined as the time the solids are in the system. The only way out is either through wasting (good) or the effluent (bad). So, it is the total solids in the system that could be sitting in either in the aeration tanks or the clarifiers. It doesn't matter in the SRT calculation.

*This myth may have started because operators often only look at the solids in the aeration tanks, confusing the Oxid Solids Retention Time (oSRT) with the SRT. Increasing or decreasing the RAS changes **where** the solids sit – not how many there are.*

The RAS rates should be thought of as an aeration timer. You are just doing on-off aeration to the solids.



The total weight of solids divided by the total volume (**BOTH** the aeration tanks plus the clarifiers). This volume can **ONLY** change if you are taking aerations or clarifiers in or out of service. The RAS is completely within these volumes, so it has no impact on the concentration.

*Similar to before, this myth may have started because operators often only look at the concentration of solids in the aeration tanks. The actual MLSS (or MLVSS) includes the solids in the clarifiers. Increase or decreasing the RAS changes **where** the solids sit – not their actual concentration.*

Think of RAS as a balance scale.

2. The way to build mass for future loading (ie: weekends, holidays, etc.) is to decrease the Waste Activated Sludge (WAS) rate.

No and Hell NO!


The bacteria in the activated sludge (90 plus percent of the biomass) eat and reproduce based upon the available food (BOD₅). Under ideal conditions, they

can double the number in a few hours but **ONLY** if there is food available. Decreasing the WAS rate will only keep more starving bacteria in the system. This is bad because you are changing the F/M ratio and increasing the oxygen demand.

One of the responses that bacteria have to low food or oxygen conditions is growing in filamentous form. So now you have grown a slower setting sludge in anticipation of a higher load and flow. One possible way this myth got started is by direct observation. Of course, decreasing the WAS rate will increase the solids in the system. However, the impacts are often not considered.

The best analogy of this comes from Dr. Sidney Innerebner from Indigo Water, who says, "I'm planning of gaining weight today from that buffet I'm going to eat next week!" This doesn't work with us or the bacteria.

Trust when you feed the bacteria, they will increase to meet the available food quickly. [DA](#)



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UOSHA Inspections

By Doug Folsom, Loss Prevention Manager , ULGT

Last fall the Utah Occupational Safety and Health Division (UOSH) announced their Local Emphasis Program (LEP). The LEP is a health and safety compliance program focused on local government entities subject to LEP compliance inspections include municipalities, public safety departments, educational institutions, state agencies, and special service districts. This program is slated to run through 2022, in which UOSH plans to conduct 50 LEP inspections per year. That is broken down to 15 inspections of municipalities, 15 of public safety departments, 15 at state agencies and special service districts, and five inspections of educational institutions each year or cycle.

The Utah Local Governments Trust (the Trust) hosted a webinar on November 1, 2017, where Evelyn Partner of UOSH's Public Sector Consultation program presented on the purpose and details of the LEP. This webinar is available to view on the Trust's website: www.utabtrust.gov/webinars.

During 2018 the Trust's Loss Prevention department has been gathering data from Trust members who have received LEP inspections. Although we have not received the results of all LEP inspections, we have received information detailing 155 separate findings. 69% of findings fall into 10 categories and the top 15 categories represent 85% of sampled LEP findings.

The following standards were cited in the aforementioned findings.

- 1910.176(b) – Secure Storage Shelves and Stacks – 11%
- 1910.303(e)(1)(iii) – Labeling of Electrical Panels - 9%
- 1910.22(a)(1) – House Keeping – 8%
- 1910.37(b)(4) & (5) – Exit Signs and Emergency Egress Issues – 8%
- 1910.1200(g)(8) & (f)(6) – Hazard Communication Program – 7%
- 1910.303(g) & (h) – Electrical Panel Access and Clear Space – 6%
- 1910.27 – Ladders/Permanently Mounted Ladders – 5%
- 1910.151(c) – Eye Wash and Drench Showers – 5%
- 1910.101(b) & 1910.253(b)(2)(ii) – Compressed Gas Cylinder Storage – 5%
- 1910.132(d)(2) – Work Station Hazard Assessment – 5%
- 1910.134(c)(2)(i) – Respiratory Protection Program – 4%
- 1910.23 – Railings – 3%
- 1904.30(a) – OSHA 300 Log Requirements – 3%
- 1910.212(a)(2) & (3) – Machine Guarding – 3%
- 1910.303(b)(8)(iii) – Free Air Circulation to Vents of Equipment – 3%


In preparation for a possible LEP inspection, the best thing you can do is make sure your required written programs are current, being followed, and available for the inspector to review. As well, you should clean and

organize your workspaces; inspect the condition and accessibility of emergency equipment; and check racks, shelves and stacks to make sure they are anchored, secured, and loaded safely. Emergency equipment that should be inspected for condition and accessibility include exit signs, emergency exits, chemical eye-washers and showers, electrical panels, and fire extinguishers.

As a rule of thumb, keep everything three feet away from electrical panels and any other equipment that can get hot or provide an ignition source. Electrical panels must be labeled for voltage and in accordance with NFPA 70 E. Circuits should be identified and there should be no open slots.

Unless actively in use, store fuel cylinders 20 feet from oxidizer cylinders and always secure cylinders against accidental tip over.

Required written programs and documentation that may result in a citation include the Hazard Communication Program, Respiratory Protection Program (if applicable), OSHA 300A log compliance, and Work Station Job Hazard Assessments.

Adequate preparation regarding these issues will help you avoid the majority of LEP findings cited in the inspections reviewed so far this year. All of these cited issues have been addressed in greater detail in past Trust webinars, which can be viewed at www.utabtrust.gov/webinars. 



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