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New WEAU Committee

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INSIDE:

WEAU'S 2022 Annual Conference | Congratulations 2021 WEAU Award Nominees



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Biological Treatment

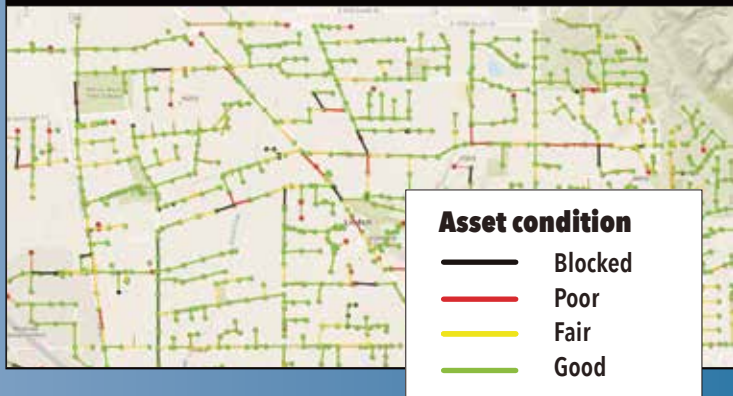
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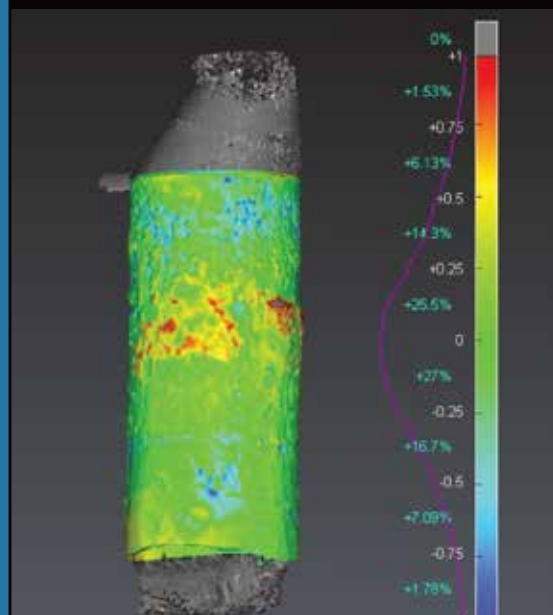


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FEATURES

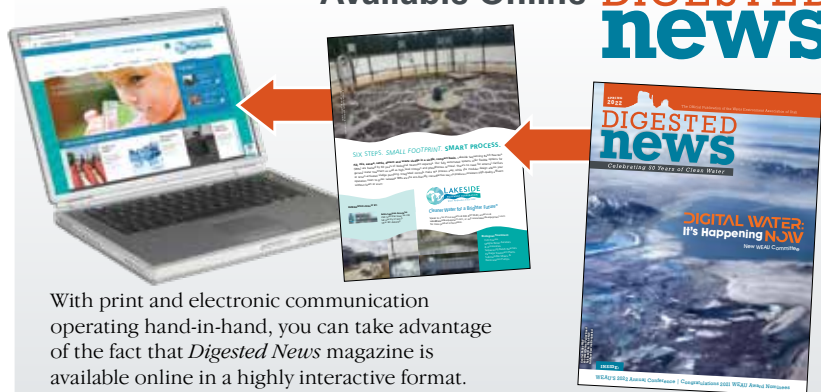
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Trevor Lindley

The Quiet Strength of Our Industry

The WEAU Annual Conference committee has been working steadily since December to plan and host an amazing conference. We hope to SEE you all in St. George from April 12-15, 2022, for WEAU's Annual Conference. Yes, in-person is the current plan!




You will find great activities, including the Operations Challenge, Golf, NASTT Sporting Clays, and various activities hosted by the Young Professionals. Also, as in conferences past, we anticipate having great food during the lunch sessions and banquet, as well as some entertaining session breaks with raffle prizes. Many vendors have already signed up at the time of this writing; and we anticipate most of the booth space being occupied. So, come take a look at any of the latest equipment you might need at your facility.

“As President, it's an honor to be part of such a great organization; this organization includes all of you, who quietly and with little fanfare anchor public health and environmental protection.

Oh, and don't forget all the CEUs you can get by attending the variety of technical sessions. This year, for those of you actively seeking certifications, the Professional Wastewater Operators (PWO) group will be leading an entire track dedicated to operator test preparation. This certification track will include a practice exam on Friday morning and discussion of the results at the end of the test.

As President, it's an honor to be part of such a great organization; this organization includes all of you, who quietly, and with little fanfare, anchor public health and environmental protection. You should all be proud of what you do.

Sincerely,

Trevor Lindley
President WEAU 



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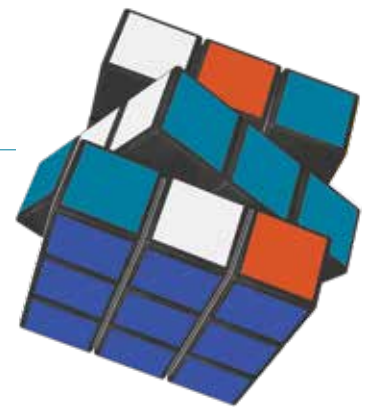
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Bryan Mansell

Rubik's Cubes

A few months ago, my 10-year-old son used YouTube to teach himself how to solve a Rubik's Cube. Once he had mastered it on his own, he started showing me (and everyone else he knew) how fast he could do it. Maybe you already know how to solve this mind-bending puzzle, but I had convinced myself many years ago that it was too complex for my brain. I assumed it was invented by a savant, like Raymond from the movie, *Rain Man*. It so happens that Mr. Rubik is just a cantankerous Hungarian professor of architecture, who invented the cube almost by accident, then took a month to solve it the first time. Who knew? It also turns out that it's not difficult at all to solve if you break it down into about a half-dozen steps and follow some simple maneuvers. Over the holidays, my son taught me those steps and maneuvers; and I can now solve the legendary Rubik's Cube, which I never thought I would achieve.

I believe we all have Rubik's Cube-like challenges in our lives. Things we may have given up hope of overcoming or resolving some time ago. My experience learning to solve this popular puzzle has taught me three things. First, how to solve a Rubik's Cube. Yes, we already covered that. I'm just repeating it to taunt those of you who haven't had the guts to try it (like me a few months ago). Second, we can learn a lot from those younger and less experienced than us. This may include 'new-comers' to the wastewater industry, or to your facility or company. Don't assume you always know more than them. Listen to and learn from their fresh perspectives. You may be very surprised by what you learn. Third, any problem can be solved if we're willing to be taught, able to break it down into bite size pieces, and really work at it.

Now that we've both learned how to solve the Rubik's Cube, my son is getting into 'speedcubing'. Apparently, that's a whole thing that has its own worldwide association. He's learning short-cuts and hand positions to shorten the time it takes. I'm so proud of him in a nerdy father kind-of-way.

Lastly, if someone is ever showing off with a Rubik's Cube, and you really want to play a fun prank, discreetly and very carefully twist one of the corners of the cube (I think this only works with certain types) so it's oriented wrong, then mix it up and ask them to solve it. Note that I'm not admitting to or condoning such adolescent behavior; and I certainly would never do that to my own son!

Reference:
www.smithsonianmag.com/innovation/brief-history-rubiks-cube-180975911 [DN](#)

“ I believe we all have Rubik's Cube-like challenges in our lives. Things we may have given up hope of overcoming or resolving some time ago.

FIND THE HIDDEN GOLDEN SLUDGE SHOVEL!*

Each quarter, *Digested News* will have this golden sludge shovel icon hidden somewhere in the content of its pages.

Be the first to find it and email the editor (digestednews@weau.org) the correct page number to win a \$25 Amazon Gift Card.

Emails should include:

- Subject: I found the golden shovel
- Correct page number
- Your name and work address

Winners will be notified directly and named in the next issue of *Digested News*. Members of WEAU can win up to once per year.

*For those of you new to WEAU, volunteers who give notable time and service to WEAU are awarded a "5S" golden lapel pin shovel. With that award, they become members of the **Select Society of Sanitary Sludge Shovelers**. WEAU is always looking for volunteers and maybe one day, you too can become a 5S member. [DN](#)



CONGRATS

to Sherry Sheffield of South Valley Water Reclamation Facility for finding the golden shovel on page 37 of *Digested News* Winter 2021! Enjoy your gift card!

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Certification Quiz

By Dan Olson

Part 1 – Collections

1. **A flow of 60 gph is equal to _____.**
 - a) 1 mgd b) 1 mg/L
 - c) 10 gpm d) 1 gpm
2. **The slope of a sewer is measured by _____.**
 - a) The difference from the crown to the invert
 - b) The difference in invert elevations over a length of pipe
 - c) Using the diameter of the pipe
 - d) Only entering the manhole
3. **An air gap can be used to _____.**
 - a) Clean sewer blockages caused by grease
 - b) Let air into manholes
 - c) Prevent backflow of wastewater into a drinking water supply
 - d) Test for oxygen deficiency in manholes
4. **A cross-connection is a _____.**
 - a) Cast iron pipe connected to a concrete pipe
 - b) Steel pipe connected to an asbestos pipe
 - c) Potable water pipe connected to a supply of questionable origin
 - d) Lateral line connected to an interceptor
5. **Wastewater carried in a collection system may come from _____.**
 - a) Digester supernatant
 - b) Exfiltration
 - c) Primary settling tank
 - d) Inflow
6. **When using any hydraulic sewer cleaning method, care must be taken by the operator _____.**
 - a) To always plug the downstream manhole
 - b) To not cause flooding in homes and businesses
 - c) To prevent any air gap from occurring
 - d) To throttle flows from the hydrants by using the hydrant valve only
7. **Disease-producing bacteria are called _____.**
 - a) Saprophytic b) Facultative
 - c) Pathogenic d) Parasitic
8. **A manhole with a center grating is normally used for _____.**
 - a) Venting
 - b) Storm sewers
 - c) Sanitary sewers
 - d) None of the above
9. **A pig would be used as _____ in a force main.**
 - a) A reamer b) A stopper
 - c) A float d) A tell-tale
10. **A minimum scouring velocity of 2 ft/sec in sewers is necessary so that _____.**
 - a) Flow velocities can be estimated between manholes
 - b) Roots won't grow in sewers
 - c) Sewer pipes won't become eroded on the bottom
 - d) Solids won't build up in a sewer and reduce flow capacity
11. **A cross-connection is best defined as _____.**
 - a) Ground water entering a gravity sewer through cracks in the piping
 - b) A lateral line connected to the main illegally
 - c) Storm drainage piped into a domestic collection system
 - d) A potable water supply connected to a potential source of pollution
12. **When dealing with collection systems, I & I refers to _____.**
 - a) Inflow and inspection
 - b) Inspection and information
 - c) Infiltration and inflow
 - d) None of the above
13. **Corrosion of sewer pipes may be caused by _____.**
 - a) Laminar flow through them
 - b) Oils in wastewater
 - c) Fungi
 - d) Acids in wastewater
14. **In a collection system, wastewater that contains no "free" or dissolved oxygen is referred to as _____.**
 - a) Aerobic b) Anaerobic
 - c) Ambient d) Debris
15. **The primary reason why it is important not to have cross-connections of sewers with water supply systems is _____.**
 - a) Possible overloading of water systems
 - b) Possible loss of drinking water pressure
 - c) Possible drinking water contamination
 - d) Loss of wastewater from the sewerage system
16. **A pig would most likely be used in the cleaning of a _____.**
 - a) Gravity sewer
 - b) Storm sewer
 - c) Force main
 - d) House or building sewer
17. **Flow rates can be expressed in which of the following units of measurement?**
 - a) In ³ b) gal/lb
 - c) mgd d) lb./mil. gal
18. **A sewer manhole is _____.**
 - a) The lowest point in the channel
 - b) A gate that opens or closes swinging around a set of hinges
 - c) An opening in a sewer provided for the purpose of access
 - d) A small hole in a sewer where a wastewater service line connects
19. **The crown of a sewer pipe is the _____.**
 - a) Bottom
 - b) Top
 - c) Flow line
 - d) Outside at the grade line
20. **The primary purpose of wastewater disinfection is _____.**
 - a) Reduction of suspended solids
 - b) Destruction of algae
 - c) Prevention of receiving water contamination
 - d) Oxidation of effluent

Part 2 – Treatment

1. The BOD of secondary effluent from an activated sludge plant normally will be in the range of _____.
 - a) 70 to 100 mg/l
 - b) 50 to 75 mg/l
 - c) 30 to 50 mg/l
 - d) Less than 30 mg/l

2. The maximum BOD loading usually considered reasonable in a small, activated sludge plant is in the range of _____.
 - a) 5 to 10 lb./1,000 CuFt of aeration tank volume/day
 - b) 25 to 35 lb./1,000 CuFt of aeration tank volume/day
 - c) 40 to 50 lb./1,000 CuFt of aeration tank volume/day
 - d) 75 to 85 lb./1,000 CuFt of aeration tank volume/day

3. How many cubic feet of air per gallon of waste are required in an activated sludge plant treating domestic wastewater with compressed air?
 - a) 6.0
 - b) 0.5
 - c) 5.0
 - d) 2.0

4. Sludge from a primary clarifier for domestic wastewater will normally contain about what percentage of volatile matter?
 - a) 10%
 - b) 33%
 - c) 65%
 - d) 100%

5. Pick one disease listed below that may be spread by improper handling of wastewater.
 - a) Small pox
 - b) Dysentery
 - c) Typhus
 - d) Sinusitis
 - e) Malaria

6. To a wastewater treatment operator, it is desirable to have an immunization program against _____.
 - a) Food poisoning, jaundice, diphtheria, COVID-19, and hepatitis
 - b) Tuberculosis, San Joaquin fever, Weils Disease, and fever
 - c) Diarrhea, Cholera, food poisoning, and ascariasis
 - d) Trachoma, pneumonia, plague, and malaria
 - e) Tetanus, typhoid, polio, and smallpox

7. Eutrophication of a lake is defined as _____.
 - a) Lake water stratifies in different temperature zones
 - b) Serious pollution by wastewater or industrial waste
 - c) Enriching the nutrient content of a lake
 - d) Septic conditions leading to the destruction of all aquatic life

8. BOD of wastewater determines the number of milligrams per liter of oxygen required _____.
 - a) During stabilization of decomposable organic matter by aerobic bacterial action
 - b) To produce an equilibrium between the oxygen of the wastewater and atmospheric oxygen
 - c) To unite chemically with the inorganic matter present in the sample
 - d) By the wastewater when digested for 30 min with a definite strength of permanganate and acid or alkali
 - e) For the oxidation of sulfites and thiosulfates to sulfates

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9. In the nitrogen cycle ammonia is produced from _____.
 a) Carbohydrates
 b) Fats and oils
 c) Cellulose
 d) Proteins
 e) Sugar
10. The gas most commonly associated with septic wastewater is _____.
 a) Carbon dioxide
 b) Methane
 c) Hydrogen sulfide
 d) Carbon monoxide
11. A pump is performing below expected discharge rate. What could be the cause?
 a) RPM is too high
 b) Discharge head is too low
 c) Discharge pressure is too low
 d) Impellor is too small
12. The flow of a centrifugal pump _____.
 a) Decreases with the increase of head
 b) Increases with the increase of head
 c) Is independent of the head
 d) Increases with the head increase only at the start of the pump
 e) None of the above
13. Nitrification is _____.
 a) Conversion of nitrogen to nitrate
 b) Conversion of nitrogen to ammonia
 c) Conversion of nitrate to nitrogen
 d) Conversion of ammonia to nitrate and nitrite nitrogen
14. Which of the following is not a modified method of the activated sludge process?
 a) Step aeration
 b) Complete mixing
 c) Kraus process
 d) Contact stabilization
 e) Wet oxidation process
15. Recycling of activated sludge back to the aeration tank _____.
 a) Lowers the DO of the effluent
 b) Provides bacteria for incoming wastewater
 c) Reduces the need for air in the aeration tank
 d) Is dependent on the temperature of the sludge

16. The amount of active biological mass in the aeration tank may best be estimated by _____.
 a) Settleable solids
 b) SS
 c) Volatile acid
 d) VSS
 e) Dissolved organic matter
17. Sludge age may be expressed by _____.
 a) Pounds of BOD in the aeration tank per day per pounds of BOD added
 b) Pounds of BOD in the aeration tank per day per pounds of SS added
 c) Pounds of VSS in the aeration tank per day per pounds of VSS added
 d) Pounds of dissolved solids in the aeration tank per day per pounds of VSS added
 e) Pounds of SS in the aeration tank per day per pounds of SS added

18. Good settling activated sludge is indicated by _____.
 a) A high SVI
 b) A low sludge density index
 c) A low SVI
 d) A low sludge age
19. Chlorination of return activated sludge might be used _____.
 a) To control filamentous organisms
 b) When BOD loading is low
 c) When oxygen in the aerator is low
 d) If nitrification is proceeding in the final settling tank
20. The concentration of the SS in the mixed liquor is usually controlled by _____.
 a) Adjustment of the air flow
 b) Adjustment of the detention period
 c) Adjustment of the wastewater flow
 d) Adjustment of the waste sludge control device

Answers

Part 1: 1-D, 2-B, 3-C, 4-C, 5-D, 6-B, 7-C, 8-B, 9-A, 10-D, 11-D, 12-C, 13-D, 14-B, 15-C, 16-C, 17-C, 18-C, 19-B, 20-C.

Part 2: 1-D, 2-B, 3-B, 4-C, 5-B, 6-E, 7-C, 8-A, 9-D, 10-C, 11-D, 12-A, 13-D, 14-E, 15-B, 16-D, 17-E, 18-C, 19-A, 20-D.



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Collections Certification Test Time

By Dan Olson Provided by the Training and Certification Committee

1. **Peaking factors are used to determine _____.**
 - a) When top flow will be
 - b) How much flow a pipe will have
 - c) Variable speed pump settings
 - d) Build out of the system
2. **Lamp holes are found in _____ and allow for _____.**
 - a) Confined Spaces, lighting of the space
 - b) Sewer pipe, connection
 - c) Jet trucks, lighting of the manhole to be cleaned
 - d) The midpoint of the pipe run, lowering of a light to see the flow
3. **If there is turbulence of the sewage flow, what can be released?**
 - a) Carbon Dioxide
 - b) Sulphur Dioxide
 - c) Hydrocarbons
 - d) Hydrogen Sulfide
4. **Inverted syphons are placed when _____.**
 - a) A regular syphon will not work
 - b) An underground obstacle is in the way
 - c) An obstacle above the ground is in the way
 - d) A rise in elevation is needed
5. **The slope of a sewer pipe, also known as hydraulic grade, is the ratio of _____.**
 - a) Rise over run
 - b) Run over rise
 - c) Length over depth
 - d) Depth over diameter
6. **The minimum velocity the flow should have is _____. This is also referred to as _____ velocity.**
 - a) 2 fps, floating
 - b) 4 fps, manageable
 - c) 2 fps, scouring
 - d) 4 fps, sustainable
7. $V = \frac{1.486}{n} R^{2/3} S^{1/2}$
This formula is known as _____ formula.
 - a) Parshall's
 - b) Bernoulli's
 - c) Berg's
 - d) Manning's
8. **What is the recommended burial depth for sewer laterals?**
 - a) 4'
 - b) 6'
 - c) 8'
 - d) 10'
9. **A good pipe joint must have four characteristics. What are they?**
 - a) _____
 - b) _____
 - c) _____
 - d) _____
10. **The velocity of a float or marked stick is often _____ % faster than the average velocity.**
 - a) 2.5 to 4.9
 - b) 5.0 to 9.9
 - c) 10 to 14.99
 - d) 15 to 20

Answers

1. B, 2. D, 3. D, 4. B, 5. A, 6. C, 7. D, 8. B, 9. Vapor tight, root resistant, flexible, durable, 10. C.



WEAU'S 2022 ANNUAL CONFERENCE

APRIL 12-15, 2022 | Dixie Center, St. George, UT



Mark your Calendars for WEAU's 2022 Annual Conference at Dixie Center in St. George, UT, back in-person, pandemic-permitting. Join us for an exciting program that includes an exciting pre-conference workshop, informative technical sessions, thrilling Operator Challenge, WEAU Meeting, WEAU's Annual Banquet and Awards program, and more. We look forward to seeing you there!



2022 WEAU Annual Conference Agenda

Tuesday, April 12, 2022

- 7:30 am-4:00 pm Registration
- 7:30 am-8:00 am Continental Breakfast
- 8:00 am-1:00 pm Pre-Conference Workshop**
- 9:00 am-4:00 pm Vendor Setup
- 11:00 am-1:00 pm Ops Challenge Setup
- 1:30 pm-5:30 pm Golf Tournament
- 1:30 pm-5:30 pm NASTT Skeet Shoot (Purgatory Clay Sports)
- 5:00 pm-9:00 pm Combined Operator's Challenge & Young Professional Pizza Party and Fiesta Fun Night (RSVP to Dan Watts, djdub56@yahoo.com)**

Wednesday, April 13, 2022

- 8:00 am-4:00 pm Registration
- 8:00 am-9:30 am Continental Breakfast (Exhibit Hall)
- 8:00 am-5:00 pm Exhibit Hall Open**
- 8:00 am-4:00 pm Operator Challenge (Exhibit Hall)**
- 12:00 pm-1:20 pm Opening Luncheon (Exhibit Hall)
- 1:30 pm-4:45 pm Technical Session A**



Thursday, April 14, 2022

- 7:00 am-8:15 am Young Professionals' Breakfast (Black Bear Diner)**
- 8:00 am-4:00 pm Registration
- 8:00 am-9:30 am Continental Breakfast (Exhibit Hall)
- 8:30 am-3:30 pm Exhibit Hall Open**
- 8:30 am-11:45 am Technical Sessions B**
- 12:00 pm-1:20 pm Business Lunch (Exhibit Hall)
- 12:30 pm-5:00 pm Blood Drive**
- 1:30 pm-4:45 pm Technical Sessions C**
- 6:00 pm-8:00 pm Banquet and Awards (Ballroom)**

Friday, April 15, 2022

- 7:00 am-8:30 am WEAU Board Meeting
- 8:00 am-8:30 am Continental Breakfast (Lobby)
- 8:30 am-11:45 am Technical Sessions D**
- 12:00 pm Final Raffle**



Register and stay updated at www.weau.org/annual_conference



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Tuesday April 12, 2022 Events

WEAU Pre-Conference Workshop

Leadership Techniques to Support High Performance Teams | Cory Christiansen, WaterWorks Engineers

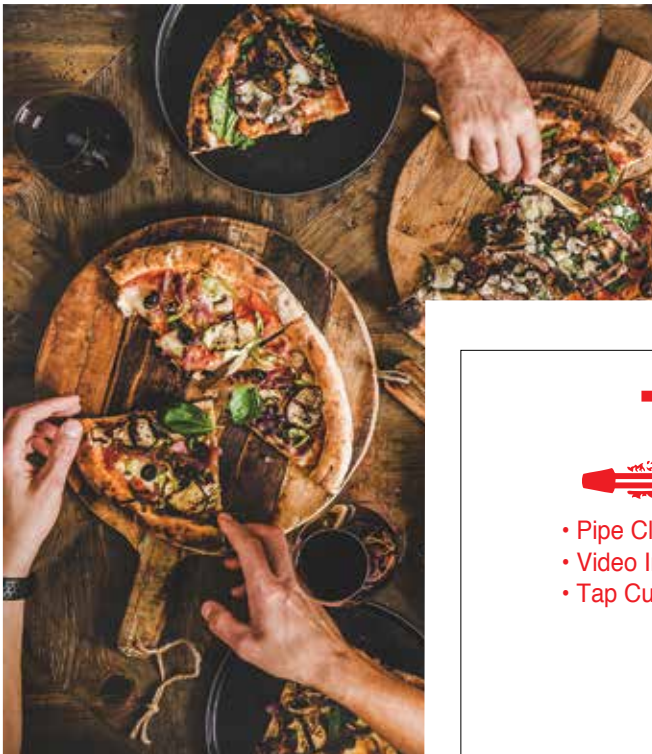
7:30-8:00 am	Registration and continental breakfast
8:00-8:20 am	Introduction
8:20-10:00 am	Session 1
10:00-10:15 am	Mid-morning break
10:15 am-1:00 pm	Session 2 and conclusion

Operations Challenge and Young Professionals Pizza Party

Pizza from 5:00 pm-6:00 pm
 Unlimited fun 6:00 pm-9:00 pm

Where: Fiesta Fun
 171 East 1160 South, St. George, UT 84770

Open to Operations Challenge Competitors/Judges and Young Professionals and their families.
 RSVP to Dan watts at djdub56@yahoo.com.



2022 WEAU Annual Golf Tournament

Tuesday, April 12, 2022
 Shotgun start at 1:30 pm

Where: Sunbrook Gold Course, St. George, UT

Format: Four-person scramble

Green Fees: \$60.00 per person, which includes cart and lunch

Lunch: Box lunches and drink provided (available starting at noon)

Contact: Jeff Beckman
 Bowen, Collins, & Associates
 154 East 14075 South, Draper, UT 84020
jbeckman@bowencollins.com
 801-495-2224

Registration forms and fees are due by April 1, 2022

Register online at www.weau.org or by returning this registration form to Jeff Beckman, along with a check payable to **WEAU Golf Tournament**. If needed, Jeff can also answer questions. We will match single players to fill foursomes.



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Technical Program Schedule

Wednesday, April 13, 2022						
	Entrada A	Entrada B	Entrada C	Sunbrook A	Sunbrook B	Sunbrook C
Topic	Exam Preparation	Public Involvement/ Outreach	Utility Management	Utility Management	Safety	Water Quality
1:30 pm to 2:05 pm	Why Treat Wastewater? TBA - WEAU	Blue Stakes – What You Don't Know but Should Spence Felsted - Blue Stakes of Utah 811	Intermountain Industrial Assessment Center (IIAC) Improves Energy Efficiency in Wastewater Treatment Plants Moriab Henning - University of Utah (Yunzhi Chen)	Using GIS and Data Analytics to Improve Utility Account Billing Accuracy Bruce Cheney - Gateway Mapping, Inc. (Melinda Van Otten)	Safety, Accidents, and OSHA Citations Jason Watterson - Utah Governments Trust	Utah Water Quality Updates and Outlook Erica Gaddis - Utah Division of Water Quality
Topic	Exam Preparation	Miscellaneous Topics	Utility Management	Project Delivery	Safety	Financing/Rate Studies
2:10 pm to 2:45 pm	Preliminary Treatment Joys TBA - WEAU	Are Development Pressures Flushing Away Your Existing Capacity? Jacob Nielsen - Hansen, Allen, & Luce (Ben Miner)	Energy and Data Management Trends Bryan Lisk - Hazen and Sawyer (Elizabeth Keddy)	Accelerating Capital Project Procurements in a Virtual Environment Jason Brown - Salt Lake City Department of Public Utilities (Don DeWolfe, Emma McGowan)	Chlorine Safety Jeff Zidek - Thatcher Company	Clean Water Needs Survey Harry Campbell - Utah DWQ (George Meados)
2:45 pm to 3:30 pm	BREAK					
Topic	Exam Preparation	Collection Systems	Nutrient Removal	Financing/Rate Studies	Wastewater Facilities	Wastewater Facilities
3:30 pm to 4:05 pm	Primary Clarifier Wonders TBA - WEAU	Combatting Corrosion in Concrete Sanitary Sewer Systems Alena Mikbaylova - Geneva Pipe and Precast	Creative Design Improves Process Performance and Reduces Energy Use Marcel Huijboom - Invent	Utah Wastewater Project Assistance Program Funding Update 2022-2028 Ken Hoffman, PE - Utah Department of Environmental Quality, Division of Water Quality	Energy Performance Upgrades at a Large Pure Oxygen Activated Sludge Treatment Plant Nick Cooper - AECOM (Paul Mikulas, Ahmad Mushtaq)	Capital Improvement Plan Maximized Bryan Bedell - The Haskell Company (Ben Adams, PE/ Teresa Crisp, PE)
Topic	Exam Preparation	Collection Systems	Nutrient Removal	Financing/Rate Studies	Wastewater Facilities	Water Quality
4:10 pm to 4:45 pm	Ponds and Safety Throughout the Industry TBA - WEAU	Manhole Rehab Quality Control With 3D Modeling Pierre Mikbail - CUES Inc.	Saving Energy and Money Through Better Wastewater Treatment Plant Mixing Alden Meade - Xylem Inc.	Finding the Right Financing Solution David Robertson - Lewis Young Robertson & Burningham	Measuring and Improving Aeration System Efficiency: A case study at TSSD Peter Zemke - Brown and Caldwell (David Barlow)	Utah Lake Nutrient Studies: Status report Theron Miller - Wasatch Front Water Quality Council

The content on the technical program is subject to change. Visit www.wEAU.org for updates.

Thursday, April 14, 2022 (Morning)

	Entrada A	Entrada B	Entrada C	Sunbrook A	Sunbrook B	Sunbrook C
Topic	Exam Preparation	Collection Systems	Nutrient Removal	Process Control	Residuals and Biosolids	Sustainability
8:30 am to 9:05 am	Laboratory Basics TBA - WEAU	Collection System Maintenance Nate and Aaron Denny - Twin D Inc.	Nutrient Management in Municipal Facilities: What we have learned so far and what we could do Ramesh Goel - University of Utah	Step Toward Smart Devices, Plant Standardization, and Proactive Asset Management at Central Valley WRF – Electrical, Instrumentation, and Controls Navneet Prasad - CVWRF	Achieving Class A Biosolids for a Small Utility Without Anaerobic Digestion Mohammed Abu-Orf - Hazen and Sawyer	Great Salt Lake and Water Reuse: How do we save the lake? Leland Myers - GSLAC (Several)
Topic	Exam Preparation	Collection Systems	Nutrient Removal	Operations	Residuals and Biosolids	Water Reclamation and Reuse
9:10 am to 9:45 am	Activated Sludge and Trickling Filters TBA - WEAU	Condition-Based Maintenance Eric Petersen - RH Borden and Company (Jonathan Borden)	Is Nitrogen Removal in Your Future? James Goodley - J-U-B Engineers	The Real Value of Automation in Treatment Operations Thomas Herbert - Hach	Digester Design Fundamentals, Proven Approaches, Innovative Future Steve Krugel - Brown and Caldwell (Chris Muller, Donnie Stallman, Tom Chapman)	Potable Reuse – Safeguarding Public Health, Hazard Analysis, and Critical Control Points Jason Curl - Hazen and Sawyer (Troy Walker, Reuse Practice Lead/ Parry Osborn, Project Manager)
9:45 am to 10:30 am	BREAK					
Topic	Exam Preparation	Collection Systems	Nutrient Removal	Process Control	Residuals and Biosolids	Water Reclamation and Reuse
10:30 am to 11:05 am	Digestion and Solids Handling TBA - WEAU	The Future is Here – Artificial Intelligence, Machine Learning, and Advanced Pipeline Condition Assessment Technologies Jeff Maier - Garver	Advanced Aeration Control with Densifications Achieves BNR Intensification: A full-scale demonstration of the Ntensify process Richard Kelly - Brown and Caldwell (Pusker Regmi, Jose Jimenez, Henryk Melcer, Nancy Keller)	Going Digital: More than just saving trees Sbaron Burton - CVWRF	Coagulant/ Polymer 101: Fundamentals of sedimentation and dewatering Yong Kim - UGSI Solutions, Inc.	Novel Reuse Approach Piloted at CWSID Amanda Stoudt - Brown and Caldwell (Weber Basin Water Conservancy District, Central Weber Sewer Improvement District)
Topic	Exam Preparation	Collection Systems	Wastewater Facilities	Operations	Residuals and Biosolids	Water Reclamation and Reuse
11:10 am to 11:45 am	Equipment TBA - WEAU	Using GIS Modeling to Evaluate Consequences of Failure in Sewer Pipe Systems Justin Brewer - PEC (Matthew Garn, Shayne Bennett)	Upgrading Lagoon Based Treatment Systems to Meet More Stringent Limits for BOD, TSS, and Nutrient Removal Tom Birkeland - Lemna Environmental Technologies, Inc.	Wastewater SCADA System Upgrades – What You Need to Know Jeff Done - AE2S (Advanced Engineering and Environmental Services)	High Value Use of Biogas – Cogen and a Whole Lot More Jason Wiser - Brown and Caldwell (Pete Zemke, Adam Ross)	Lessons Learned in Five Years Operation of the First Full-Scale Reuse Plant in New York State Dave Holland - Aqua-Aerobic Systems

The content on the technical program is subject to change. Visit www.weau.org for updates.

Thursday, April 14, 2022 (Afternoon)						
	Entrada A	Entrada B	Entrada C	Sunbrook A	Sunbrook B	Sunbrook C
Topic	Exam Preparation	Collection Systems	Nutrient Removal	Process Control	Residuals and Biosolids	Water Reclamation and Reuse
1:30 pm to 2:05 pm	Disinfection TBA - WEAU	You Can't Always Get What You Want Dan Olson - Snyderville Basin Water Reclamation District	Enhanced Biological Phosphorus Removal (EBPR) – What You Can and Cannot Control/Best Design Practices Sergio Pino-Jelcic - OVIVO	Whole Effluent Toxicity Testing – The Basics Sherry Sheffield - South Valley Water Reclamation Facility	Value-Added Approach to Temporary Dewatering at SLC WRF Grant Davies - AECOM (Terry Goss, Jamey West, Michelle Barry)	Membrane Bioreactors for Water Reuse – Design, Procurement, and Maintaining MBRs Scott Buecker - AE2S (Advanced Engineering and Environmental Services)
2:10 pm to 2:45 pm	Nutrient Removal TBA - WEAU	Lessons Learned – UVCIPP Lining at NDS Marianka Sobanska - Brown and Caldwell	Phosphorus Removal: A holistic and tailored approach Rebecca Yoo - Brown and Caldwell (Rich Mickelsen, Phil Heck, Rick Kelly, Henryk Melcer, Trevor Lindley)	Reading the Toxicological Data on an SDS Can Protect Your Plant Lee Rawlings - SVWRF	HUBER Technologies BT Dryer – Safe and Efficient Drying Ross Garbett - Huber Technology	Considering MBR for Potable Reuse – Pathogen Removal with a 10-year-old Flat Sheet Membrane Bioreactor Larry Morris - Kubota Membrane USA Corporation (Brian Codiann)
2:45 pm to 3:30 pm	BREAK					
3:30 pm to 4:05 pm	Math Basics TBA - WEAU	Mitigating Risks at WWTPs During CIPP Installation Steven Meyer - Bowen Collins & Associates	Long-Term Treatment Performance of High Efficiency Sidestream Phosphorus Removal Mudit Gangal - Ovivo USA LLC	Changes to DWQ Operating Permits Glen Lischeske - Utah Department of Environmental Quality, Division of Water Quality (Andrew Pompeo)	Biosolids Land Application Support Tool Sarah Guzman - Cache Environmental Laboratories, P.C. (Wington Brito, Natalie Diltz)	Wastewater Re-use Upgrades in Utah Often Require Third Party End User Cost Allowance Negotiations Marcus Theodore - Earth Renaissance Technologies LLC
4:10 pm to 4:45 pm	Math Basics (cont.) and Test Taking Skills TBA - WEAU	Lessons Learned on the Provo Westside Sewer Outfall Project Dave Dillman - Horrocks Engineers (David Torgensen)	Achieving Ultra Low Phosphorus Targets at JSSD Gregory Page - Neo Water Treatment (Jason Hock NWT, Drew Robinson JSSD)	Water Quality What's Up With My Wasteload Allocation? Nicholas von Stackelberg - Utah Department of Environmental Quality (Christopher Shope, Suzan Tabir)	Wastewater Facilities Odor Control in Wastewater Treatment Plants: Comparative bio media assessment for biotrickling Virginie Kreim - John Cockerill Europe Environnement (Estelle VAS)	Process Control Taking the Mystery Out of Open Channel Flow Measurement Mark Klee - Siemens

The content on the technical program is subject to change. Visit www.weau.org for updates.

Friday, April 15, 2022 (Morning)						
	Entrada A	Entrada B	Entrada C	Sunbrook A	Sunbrook B	Sunbrook C
Topic	Exam Preparation	Project Delivery	Struvite	Operations	Student Presentation	Nutrient Removal
8:30 am to 9:05 am	Practice Test TBA - WEAU	Managing Current Market Volatility with Project Bidding Ryan Dooley - Brown and Caldwell (TBD)	Struvite – The Scale You Love to Hate Shawn Wilson - Central Weber Sewer Improvement District	Improving Chemical Resilience of WRRFs: Strategies and approaches Derya Dursun - Hazen and Sawyer	Student Design Team TBA	Provo City's Advanced Wastewater Treatment Process Selection and Modeling: A Pathway to Future Rob Bryant - Water Works Engineering, LLC (David Torgersen PE, David Kopchynski PhD PE, Ed Becker PE, Jayesh Charthal)
Topic	Exam Preparation	Project Delivery	Struvite	Operations	Wastwater Facilities	Nutrient Removal
9:10 am to 9:45 am	Practice Test (Cont.) TBA - WEAU	Managing Project Costs in an Uncertain Economy Michael Brewer - Jacobs (Jason Brown/Chief Engineer; Salt Lake City Department of Public Utilities)	Full Scale Pilot of a Novel Struvite Precipitation System at the Provo WRP Eric Auerbach - Arcadis (Matt Kessler - City of Provo Utilities)	Are We Doing as Good as We Thought We Would? Chad Burrell - Snyderville Basin WRD (Cody Snyder)	Fate and Transport of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) in Central Valley Water Reclamation Facility Anjan Goswami - University of Utah (Anjan Goswami, Dr. Aditi Podder; Dr. Phillip Heck, Dr. Ramesh Goel)	True Batch Sequencing Batch Reactor for Nutrient Removal in Utah Manuel de los Santos - Aqua-Aerobic Systems, Inc.
9:45 am to 10:30 am	BREAK					
Topic	Exam Preparation	Project Delivery	Struvite	Operations	Miscellaneous Topics	Sustainability
10:30 am to 11:05 am	Test Review TBA - WEAU	Construction Roundtable Gary Vance - J-U-B	Investigation of Options for the Prevention of Struvite Formation Without Chemical Addition Jenny Calderon - Water Works Engineers (Jayesh Charthal, Matt Kesler; Cory Christiansen)	P-What? Micro-What? Tiffini Adams - Snyderville Basin WRD (Erin Anderson, Chad Burrell)	Performance Comparison of Grit Removal Systems Eric Tobin - Hydro International	Leadership in Sustainability through Delivery of a New 48MGD Water Reclamation Facility Holly Lopez - Salt Lake City Department of Public Utilities (Will Peterson, Jennifer Graves)
Topic	Collection Systems	Project Delivery	Struvite	Operations	Wastwater Facilities	Miscellaneous Topics
11:10 am to 11:45 am	Collections Kahoots TBA - WEAU	Construction Roundtable (Continued) Gary Vance - J-U-B	Nutrient Recovery: Taking the bite out of struvite Bryan Atieh - Hazen and Sawyer	Operational Troubleshooting for Biological Nutrient Removal Systems William Leaf - Jacobs	Should You "Settle" for Vortex Grit Removal? Ryan Asbury - Smith & Loveless, Inc.	Microscreening for Advanced Primary Filtration – Pilot Testing at Timpanogos, UT Sebastian Jaworski - HUBER Technology, Inc.

The content on the technical program is subject to change. Visit www.weau.org for updates.



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Congratulations

2021 WEAU Award Nominees

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Granger-Hunter Improvement District
Heber Valley Special Service District
Midvalley Improvement District
North Davis Sewer District
Orem City Water Reclamation Facility
Provo City Water Reclamation Facility
Roosevelt City Wastewater
Salem City Water Reclamation Facility
Salt Lake City Water Reclamation Facility
Snyderville Basin Water Reclamation District
South Valley Water Reclamation Facility
St. George City Water Reclamation Facility
Timpanogos Water Reclamation Facility
Aaron Davenport – Provo City WRF
Amanda Stoudt – Brown and Caldwell
Austin Petersen – Central Valley WRF
Brandon Boer – Murray City Wastewater
Cameron Crowther – Central Davis Sewer District
Colinrae Gonzalez – Central Weber SID
Collin Child – Midvalley Improvement District
Dallas Henline – Magna Water District
Dawn Nielsen – Central Weber SID
Dillion Anglin – Central Valley WRF
Eric Price – Central Valley WRF
Greg Foy – Provo City WRF
Gregg Hiatt – Santaquin City WRF
Heath Hawkins – Salt Lake City WRF
Jacob Halligan – Jordan Basin WRF
Jacob Mann – Provo City WRF
Jamey West – Salt Lake City WRF
Jared Pratt – Logan City Water & Wastewater
Joshua Hunsaker – Central Valley WRF
Korey Walsh – EDM Partners
Kyle Dean – Granger-Hunter Improvement District
Levi Allred – Granger-Hunter Improvement District
Loren Willes – Salem City WRF
Mack Straw – Eagle Mountain City WRF
Manjot Masson – Central Davis Sewer District
Manjot Masson – Central Davis Sewer District
Matt Kesler – Provo City WRF

Melissa Willes – Central Valley WRF
Mike Pritchett – Midvalley Improvement District
Ned Stevenson – Payson City
Sean Fischer – Central Valley WRF
Shawn Wilson – Central Weber SID
William Murdock – Provo City WRF
Zac Staheli – Spanish Fork City WRF

Way to go!



DIGITAL WATER: It's Happening NOW

By Navneet Prasad, Chair of the NEW Digital Water Committee

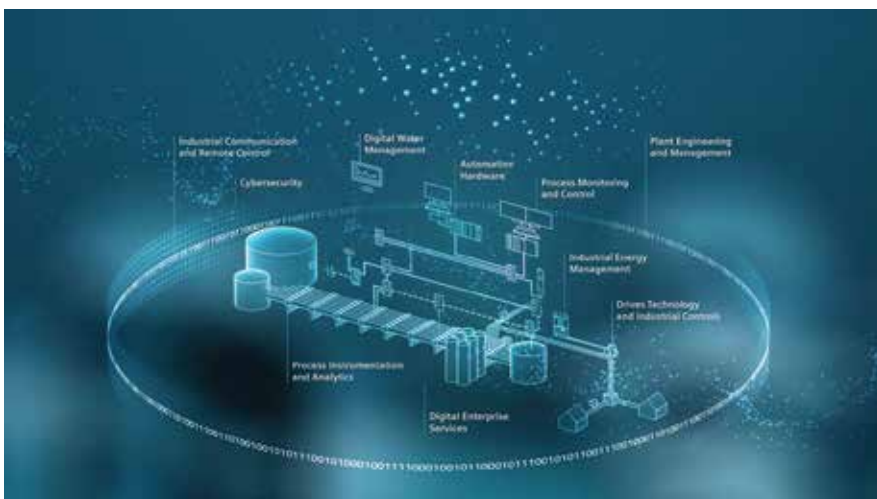
Internet of things (IoT), artificial intelligence (AI), machine learning, big data, smart devices – these are the buzz words for the era we live in which are driving a lot of infrastructure industry, including water and wastewater, to change how they see and operate things. Building and working towards a sustainable digital water utility can look like a far-fetched goal and seem inequitable. However, knowing that other industries, such as oil and gas, mining, and semiconductors, have in the past gone through or are still going through a digital transformation with overwhelmingly positive results, gives us in the water and wastewater industry a lot to learn from and can instill some confidence as well.

I am new to the wastewater world but have worked in the industries mentioned above. Attending WEFTEC '21 in Chicago was an amazing experience for me. I was astounded to see the conversation happening around the digital space and the effects and impacts it's having on our industry. I observed that many organizations have already taken this step towards digital transformation a few years back and are reaping the benefits; but then I also saw a lot of organizations that are barely starting or have not even started. That made me wonder where Utah stands amid things. Let's dive into some background and eventually see where we stand and what we are doing to move forward.

Background

Working its way with a steep growth trajectory, Digital Water, in the next decade, will outpace the broader municipal water and wastewater sector. Slowly but steadily, it is becoming a necessity to be a digital water utility and address various factors affecting the industry like increasing water scarcity, aging infrastructure, urbanization, stressed water systems, and extreme and unpredictable weather events. Water companies lose \$40 billion a year in revenue, globally, because of non-revenue water (NRW) which makes optimization of water resources and the need for a larger and smarter workforce the immediate need to fix these and similar problems.

There have been global research papers and studies showing how digital solutions have the potential to unlock global growth and transform infrastructure. The World Economic Forum in 2016 estimated that a whopping \$1.3 trillion of value globally can be unlocked through digital transformation in the electricity sector by 2025. Likewise, \$5.2 trillion worth of contribution could be expected to be added to the global economy by 2030 by implementing Artificial Intelligence for environmental applications as per a study by PwC. Cities and infrastructure can improve key quality-of-life indicators by 10% to 30% if they embrace smart technologies, as found by the McKinsey Global Institute.



Source: www.assets.new.siemens.com

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Seven Steps to Digital Transformation: The seven stages of digital transformation, adapted from the Smart Water Network Forum (SWAN), a global non-profit organization focused on digital transformation in the water and wastewater industry. (Source: www.waterworld.com)

Where does Utah stands in this digital transformation and are we doing enough?

Talking to various experts in the water and wastewater industry here in the state of Utah, it seems like the conversation around the digital space, and how it can make an impact, has started; but there is still a lot to do and achieve as a group. As mentioned earlier, like other industries, there are facilities and solutions experts who have started taking steps towards digital transformation; but we need more awareness and to have professionals of the field come forward and share experiences from around the country and world to help professionals in Utah with understanding the importance and impact of digital transformations.

What is WEAU doing to help?

WEAU understands the need of the hour – i.e. our industry is moving at a fast pace towards the digital space and aiming for a “smart utility” goal. As a result, WEAU has decided to rebrand one of its former committees (the Laboratory Committee) as the Digital Water Committee.

The Vision of this committee is to help bring and keep the WEAU members up-to-date with current trends and best practices, including moving towards the “Smart Utility” goal.

The Goal of this committee will be to provide the WEAU members with insight on the new trends in the digital space in the water/wastewater industry, digital transformations happening at facilities within WEAU and without,



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as well as new technologies being introduced in the following fields – lab, instrumentation, controls systems (SCADA, DCS, PLC, HMI), electrical systems, process optimization, energy efficiency, operations, cybersecurity, and more.

To accomplish this, we propose the following committee actions:

- Develop and conduct at least two local training programs/seminars each year for WEAU.
- Submit articles on the latest technology trends in the wastewater industry.
- Present related topics at the WEAU Mid-year and Annual Conferences.

Current Committee Members:

Navneet Prasad (Chair)

Navneet is an Electrical Controls Engineer at Central Valley Water Reclamation Facility. With an MS in Electrical Engineering and an MBA degree in Operations, Leadership & Management, Navneet has worked in various industries and has vast experience in system integration and process optimization.

Eric Smith

Eric is the President of APCO Inc. and has worked with organizations throughout the state to develop state-of-the-art SCADA systems and associated technology infrastructure to accomplish their respective digital water goals.

Thomas Herbert

Tom is an Automation Development Manager at HACH and has managed wastewater operations at Pitman Farms/Norbest Moroni, UT.

Jason Stansfield

Jason is a Network Administrator at North Davis Sewer District. [dn](#)

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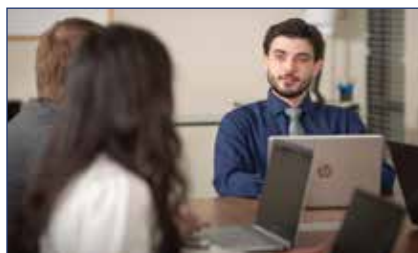


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Basic is available for **free** and can be downloaded from either the Apple or Google Play Stores.

- **BLAST® Premium** is our latest BLAST® upgrade that allows the user to optimize their biosolids beneficial use program design through input of site-specific information including sludge and soil quality, crop selection, pathogen control class and vector attraction reduction method. BLAST® Premium not only verifies that your design is regulatorily compliant but allows the user to estimate the annual pollutant application rates of regulated (*e. g.*, heavy metals) and emerging contaminants (*e. g.*, PFAS).



- **Biosolids Pro 180**: consists of two, five (5)-hour on-demand biosolids land applier certification training videos. Biosolids Pro 180 is specifically designed to prepare viewers to pass the Biosolids Land Applier State certification examination. Together with an in-depth review of the Title 40 CFR Part 503 Subpart B Sludge Rule,

Biosolids Pro 180 highlights the EPA recommended approach for biosolids beneficial use system design.



- **Biosolids Land Applier Certification Course**: Our in-person Biosolids Land Applier certification courses focus on understanding the legal requirements of the federal sludge rule (Title 40 Code of Federal Regulations Part 503 Subpart B - Land Application). The certification courses, which are available in either English or Spanish, highlight the three legally enforceable pillars of the federal law: *i.e.*, pollutant limits, pathogen control class and vector attraction reduction. Our Biosolids Land Applier Certification Courses are the most comprehensive preparation tool currently available for certification exam preparation. This ten (10) hour course covers other vital biosolids topics such as exceptional quality (EQ) biosolids product generation, land area requirements, domestic septage recycling and emerging contaminants. Upon course completion, you will earn 1.0 continuing educational unit (CEU) credits.



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The **POWER TO ALL** Mentality

By Navneet Prasad, CVWRF

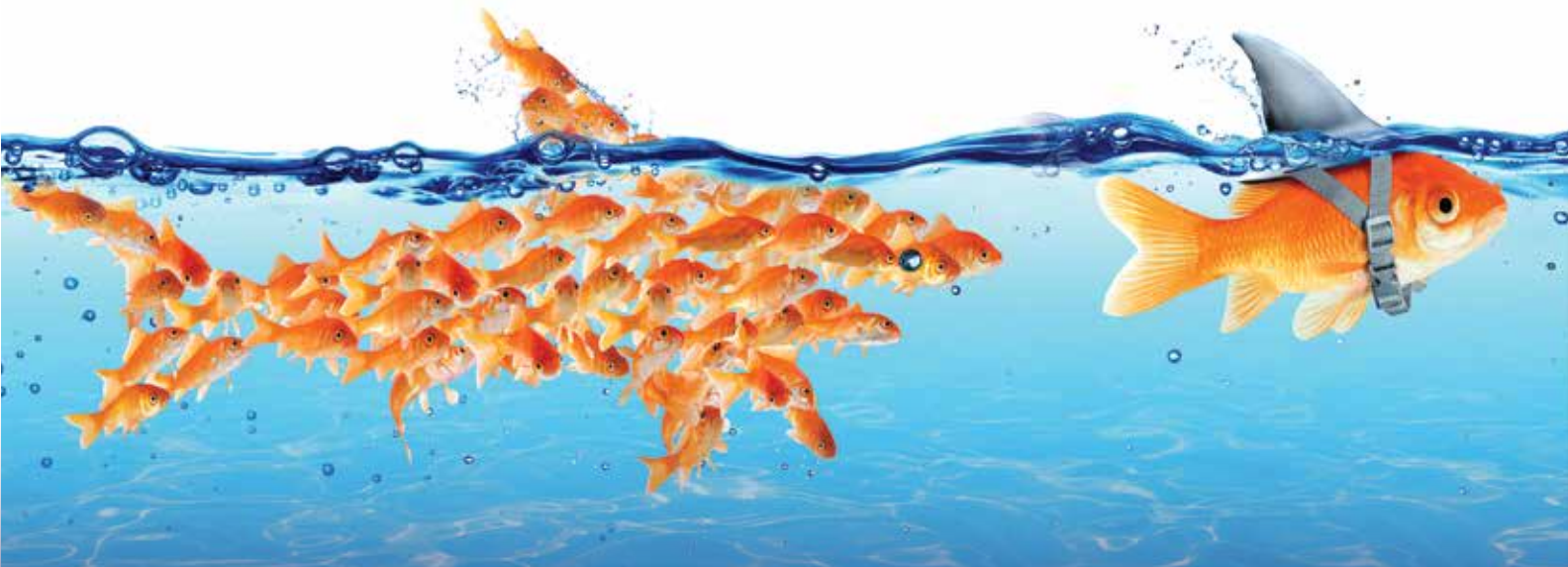
“If your actions inspire others to dream more, learn more, do more and become more, you are a leader.”

– John Quincy Adams.

It's true that organizations are successful because of effective and good leadership but what a lot of people miss is that those successful organizations have effective and even better employees because the leaders give them the power to be so. Good leaders are great at making decisions, assigning and managing tasks, allocating resources but, I think, great leaders are those who motivate and make employees feel why they are important. This adds a sense of responsibility. It adds a sense of ownership and gives them power to achieve even more. These leaders drive a cultural change within an organization and help find more leaders.

Organizations work better and perform better as a team because the culture and the power that each employee has drives that. These leaders foster an environment to foster where you feel psychologically safe to share anything, cultivate ideas, find solutions, and ask questions even if it's questioning the leader. This “power to all” mentality is what good leaders in an organization must give to their employees which will help organizations to scale new heights.

And as Bill Gates said, “As we look ahead into the next century, leaders will be those who empower others.” We are in that century, but will you be that leader? [Dn](#)



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New Building Resilient Infrastructure and Communities (BRIC) Grants Available for Water and Wastewater Resilience Projects

Building Resilient Infrastructure and Communities (BRIC) grant program

Guiding Principles

Support community capability and capacity building



Enable large infrastructure projects



Encourage and enable innovation



Maintain flexibility



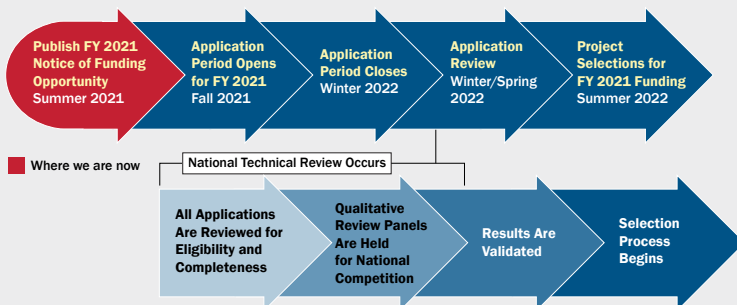
Promote partnerships and equity



Provide consistency



BRIC Launch Timeline

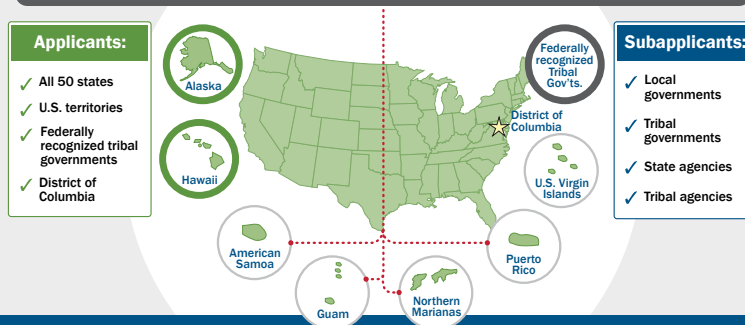


Funding

BRIC is funded by a 6% set-aside from federal post-disaster grant funding

- **State and Territory Allocation:** An allocation for each state, territory, and the District of Columbia (DC).
- **Tribal Set-Aside:** A set-aside for federally recognized Tribal Governments.
- **National Mitigation Project Competition:** For all eligible Applicants, the remainder of the funding will be available competitively for mitigation projects.

Who is eligible for BRIC funding?



For more information visit www.fema.gov/bric

The Building Resilient Infrastructure and Communities (BRIC) program is a Federal Emergency Management Agency (FEMA) grant program that aims to shift the federal focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience. The Federal Emergency Management Agency recently unveiled a multi-year strategic plan with guidelines when preparing for the impact of severe-weather events. As part of its 2022-2026 strategic plan, FEMA intends to target investments for transformational projects that respond to the specific risks posed by climate change. FEMA noted that in 2020, it recorded 22 weather and climate disaster events. The strategic plan emphasizes infrastructure resilience, including the lifelines of water and wastewater services.

Many communities are faced with aging infrastructure, which can increase risk from major disasters. As the frequency of these disasters accelerates, the Agency must increase climate adaptation investments across the nation. FEMA seeks to pursue hazard mitigation via the BRIC grant program. Established in 2018 after the enactment of the Disaster Recovery Reform Act, BRIC aims to incentivize innovative infrastructure projects capable of withstanding severe weather events. FEMA estimates that every \$1 spent on pre-disaster mitigation saves \$6 post-disaster costs. For 2022, the program has \$1 billion in funding; similar amounts are programmed for the next several years.

BRIC funding will be disseminated through an annual national competition based on six qualitative evaluation criteria:

- (1) Risk Reduction/Resiliency Effectiveness,
- (2) Climate Change and Future Conditions,
- (3) Implementation Measures,
- (4) Population Impacted,
- (5) Outreach Activities, and
- (6) Leveraging Partners.

There is detailed description for each of these criteria as well as a specific grading criterion for each of the evaluation criteria. The grant program for selected recipients allows for 75% FEMA funding with the applicant providing 25% match funding. The program allows for state revolving funds (SRF) loans to be used for the match. The maximum for each BRIC funding request is \$50 million.

Projects must:

- be cost-effective;
- reduce or eliminate risk and damage from future natural hazards;

- meet either of the two latest published editions of relevant consensus-based building codes, specifications, and standards;
- align with the applicable regional hazard mitigation plan; and
- meet all environmental and historic preservation (EHP) requirements.

The annual program requires pre-planning to develop the scope, schedule and budget and other criteria of the grant application. The pre-planning must be developed into a Missouri State Emergency Management Agency (SEMA) BRIC Notice of Interest (NOI) application and must be submitted by September each year. Provided that SEMA approves the NOI for formal application to the BRIC grant competition, the applicant then prepares an online BRIC grant application that addresses the six evaluation criteria and submits it to SEMA by the end of November. SEMA reviews and comments on the application for any revisions/ additions and submits it to FEMA by the end of January. FEMA issues the notice of grant award typically by September.

Projects are most likely to be successful if they address one or more of the following:

High-impact, neighborhood scale, and natural hazard risk reduction that either mitigates risk to critical infrastructure or achieves whole community risk-reduction; provide protection and benefits for disadvantaged communities; or address climate impacts including drought, extreme precipitation or heat, wildfire, and/or more frequent storms (where applicable).

Projects that advance climate adaptation, including through inspiring generational infrastructure change and/or by including one or more nature-based solution (NBS) are particularly encouraged. Where appropriate, applications should describe how the project will make the community more resilient to climate change, address and anticipate future conditions including those related to climate, demographic, population, and/ or land use changes. Project details should include how future conditions were considered in the planning, design, and

operation stages and how the project will help communities better respond to these conditions. Unique or innovative partnerships such as public-private partnerships are also included.

During the first year BRIC reviews, trends showed that 100% of selected projects received points in these categories: lifeline, infrastructure, building code adoption, building code effectiveness grading schedule (BCEGS), and future conditions. Other key categories included nature-based points and increased non-federal share. In general, risk reduction, population impacted, implementation measures, and leveraging partners were trends of selected projects.

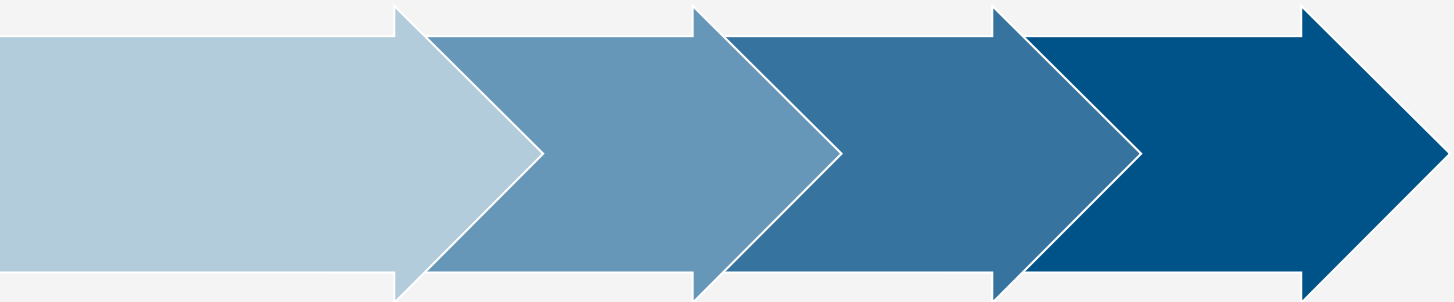
For more information, visit:

SEMA: www.sema.dps.mo.gov/programs/mitigation_management.php

FEMA: www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities/before-apply#eligibility

EPA: www.epa.gov/fedfunds/building-resilient-infrastructure-and-communities-bric 

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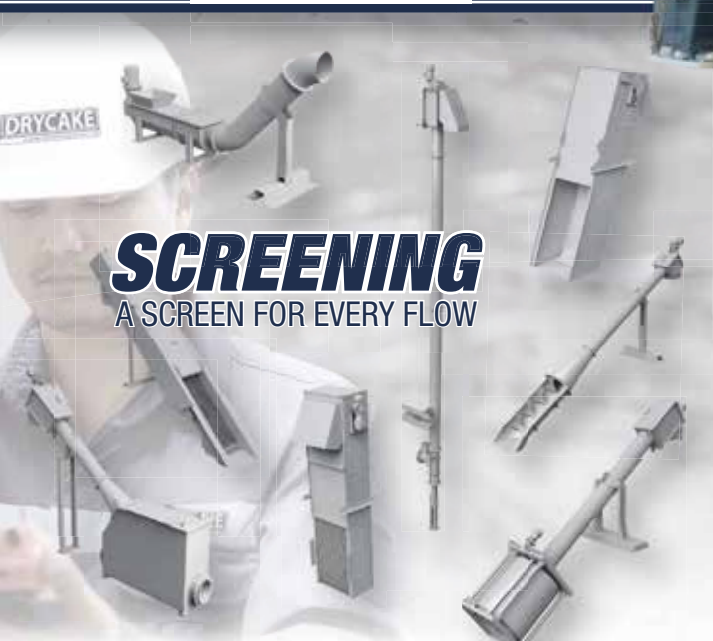


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CONNECTING THE BIOSOLIDS COMMUNITY

New Talent and Resources Affirm WEF's Commitment to Sustainable Biosolids Management

By Justin Jacques

Water resource recovery professionals have long understood that when processed correctly, fertilizers made by repurposing wastewater biosolids can often represent a safer, cheaper, and more sustainable soil amendment compared to manure or chemical-based fertilizers.

However, while biosolids reuse in the US has become more common in recent decades, its adoption has been sluggish because of inconsistent regulatory guidelines, gaps in research, and the social stigma of recycling human waste.

The Water Environment Federation is taking several new steps to help overcome these obstacles. In February, WEF released a new communications toolkit to help utilities and biosolids managers build support for biosolids recycling using simple, science-backed messaging. The organization also established a new staff position, hiring former Northwest Biosolids (Gig Harbor, WA) Executive Director Maile Lono-Batura as its first Director of Sustainable Biosolids Programs.

"Biosolids are a central product of the wastewater treatment process, a vital part of resource recovery and circular economy, and beneficial for communities in many ways," said WEF President Lynn Broaddus. "WEF is increasing our investment in biosolids programs and is thrilled to add Maile's expertise and experience to our team."

A UNIFIED VOICE

With more than 20 years of experience leading a multi-state biosolids association, Lono-Batura is uniquely suited for her new role, which will involve unifying biosolids recycling practices and regulations that vary by region and state. In a February 16 *Words on Water* podcast interview, Lono-Batura described her goal to create a "collective platform" for biosolids research, advocacy,



Water Environment Federation has hired Maile Lono-Batura, former executive director of Northwest Biosolids (Gig Harbor, WA), as its inaugural Director of Sustainable Biosolids Programs. The new position, along with other recent biosolids programs, signal WEF's growing focus on promoting biosolids recycling.

Image courtesy of Lono-Batura.

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and knowledge-sharing at the national level. Much of her work will center on sharing resources between biosolids-management groups to reduce redundancies and amplify messaging, she said.

"For those of us in the field of biosolids, we know how important it is to have a unified voice around biosolids so that we're all singing from the same sheet," Lono-Batura said. "It's going to be a challenge, for sure. But it is such a worthy challenge to me."

WEF's new Biosolids Communications Toolkit, accessible at bit.ly/WEF-biosolids, will help jumpstart Lono-Batura's work by providing customizable bill inserts, fact sheets, social media infographics, and other materials that convey key messages about biosolids in simple, accessible terms.

Each resource available in the free toolkit works from cited, peer-reviewed sources and aim to reach different stakeholder groups, including those both inside and outside the wastewater



sector. For example, some resources cover strategies for managing media coverage of biosolids programs, while others tout the benefits of biosolids-based fertilizers for farmers.

“We ‘geek out,’ and that’s not a bad thing within our circle,” Lono-Batura said. “But we lose people pretty quickly if we cannot relay the importance of what the research has found, whether it be favorable or unfavorable.”

Although much of WEF’s existing activity in sustainable biosolids has been technical in nature, Lono-Batura’s new role indicates a growing focus on the social and logistical aspects of the biosolids challenge. Lono-Batura will not only work alongside biosolids professionals among WEF’s membership, but also with regulators, environmentalists, the media, and others.

“There are a whole team of people not just within WEF but within and beyond the biosolids community that we can be

aligning with – that part is what really excites me,” Lono-Batura said. “That we can speak beyond our sector and connect with people beyond the people we normally connect with to see what common ground we have and how we can join forces on soil building, climate change, and producer responsibility.”

REGULATION AND RESEARCH

WEF’s new Director of Sustainable Biosolids position and communications toolkit promise to advance national coordination on biosolids recycling, but they are only the latest actions.

In November 2019, for example, WEF invited leading biosolids experts from across North America to its headquarters for a strategic conversation that identified ways to improve biosolids programs and better promote their adoption. Among other recommendations, meeting attendees described needs for better risk


assessment methods for contaminants of emerging concern, new training and certification programs, and more robust communication between producers, farmers, and researchers.

Experts also called for an update to federal government guidance on biosolids use, as most US states currently implement their own biosolids regulations. The US Environmental Protection Agency (EPA) Part 503 Rule, established in 1993, remains the only federal regulation governing land application of biosolids. Despite advancements in treatment technology that result in cleaner, safer, and more viable biosolids, the Part 503 Rule has never undergone a substantial update.

Read more about the meeting’s outcomes at bit.ly/WEF-biosolids-report.

WEF also published five new technical resources in 2020 that deal exclusively with biosolids management. Covered topics include the financial costs of managing per- and polyfluoroalkyl substances (PFAS), measuring and managing greenhouse-gas emissions during the synthesis process, bioenergy focused public-private partnerships, and more. Access these technical resources at www.wef.org/biosolids.

Save the Date for Residuals and Biosolids 2022. From May 24 to 27, 2022, WEF will host its annual Residuals and Biosolids conference in Columbus, Ohio. Access the latest research in biosolids management, perspectives from biosolids-sector changemakers, and one-of-a-kind networking opportunities. More details are available at www.wef.org/residualsbiosolids.

Justin Jacques is the WEF’s Departments Editor. He can be reached at jjacques@wef.org. 

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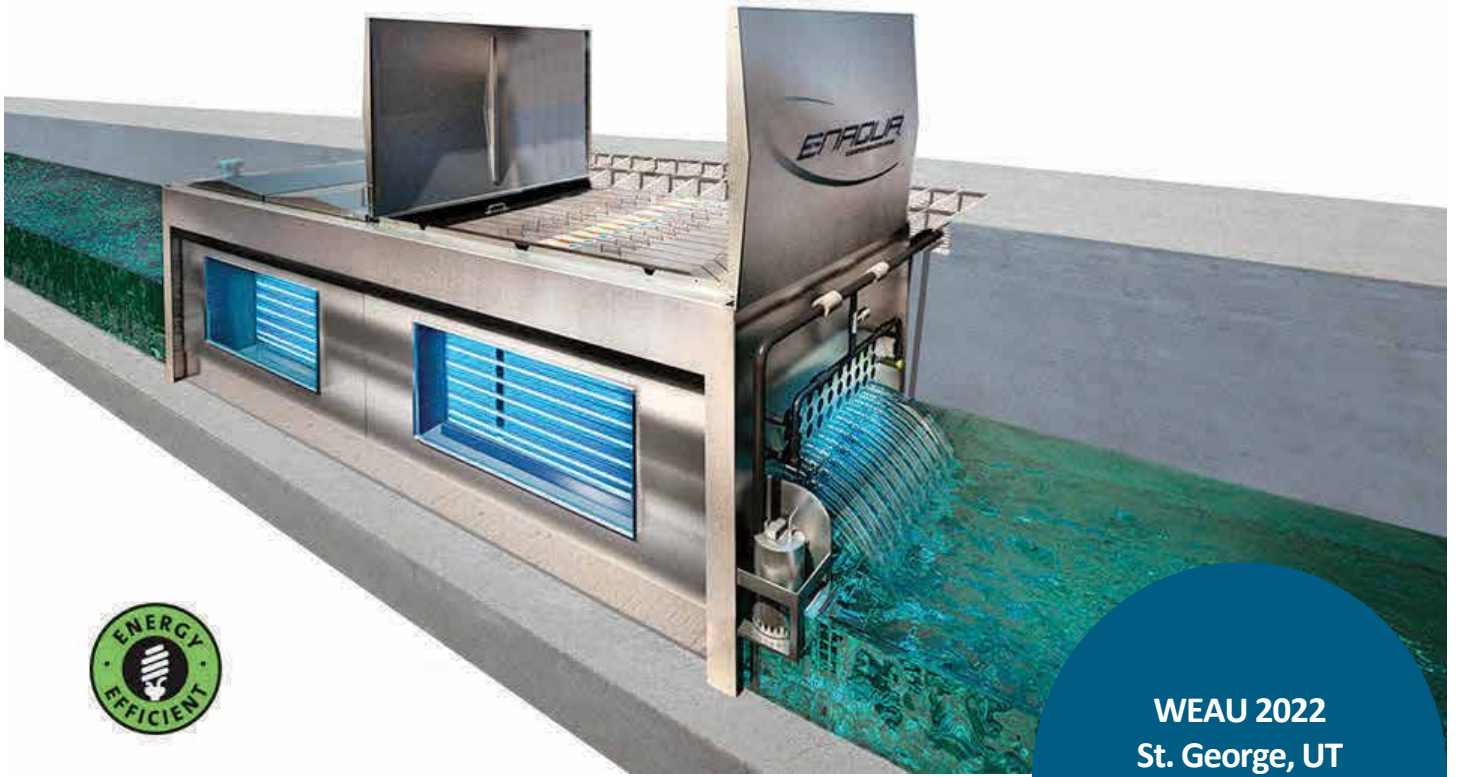


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NSmart Program Launches

to Reduce Nutrients in Waterways and Recognize Leading Utilities



The Water Environment Federation (WEF), in collaboration with the US Environmental Protection Agency (EPA), has launched the NutrientSmart (NSmart) program to help reduce nutrient loadings in waterways and recognize the water utilities that are leaders and innovators.

NSmart will begin as a pilot program and encourage the adoption of enhanced nutrient management practices by water utilities and distribute information on tools and methods for lowering nutrients.

“Water utilities can play a vital role in lowering nutrient levels in waterways across the US and WEF has launched NSmart to assist in these efforts,” says WEF President Jamie Eichenberger. “We look forward to recognizing leading utilities for their work and innovation through this program.”

To participate in the NSmart program, utilities must demonstrate intent or actions toward enhanced nutrient management. The program has a component for utility-community engagement through outreach and for reduction of nitrogen, phosphorus, or both. Additionally, the program recognizes utilities implementing an innovative strategy to achieve those reductions.

The recognition levels of NSmart are:

Advocate: Participants working toward active engagement for nutrient reduction within their watershed via outreach. The facility is working toward implementing a nutrient reduction strategy that results in reductions between 30-69.9%.

Partner: This level is for WRRFs with a fully implemented nutrient reduction plan and that have an active outreach program. The utility can choose to focus on reducing nitrogen, phosphorus, or both. Tiers are divided based on percent nutrient reduction – Silver 70-84.9%, Gold 85-89.9% and Platinum 90%+ reduction.

Innovator: This recognition is a competition for utilities that are currently in the partner level. The facility can earn additional recognition for innovation related to nutrient reduction. Facilities will be evaluated against one another based on subdivisions of design flow rate. Innovator recognition falls into the categories of Treatment Technology and Leadership in Nutrient Management.

For more information, visit www.wef.org/nsmart.

“NSmart will begin as a pilot program and encourage the adoption of enhanced nutrient management practices by water utilities and distribute information on tools and methods for lowering nutrients.”

U.S. Stockholm Junior Water Prize State Competition



The U.S. Stockholm Junior Water Prize is the most prestigious award for a water-related science project at the high school level. The prize seeks to inspire today's young scientists as they tackle the challenges facing one of our planet's most vital resources.

State winners receive a state winners medal and certificate, a one year student membership to the Water Environment Federation, and an all-expense-paid trip to the national competition during the 3rd weekend of June.

The national winner receives a cash prize of \$10,000, a crystal trophy and an all-expense-paid trip to the international competition in Stockholm, Sweden, in August.

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Dr. Mike McFarland to Serve on National Biosolids Panel

Dr. Mike McFarland, PE, BCEE, and a WEAU member, has been appointed by the Biden Administration to serve on the EPA Science Advisory Board’s (SAB) National Biosolids Panel.

The National Biosolids Panel’s first order of business shall be to conduct a scientific and regulatory review of *the EPA White Paper: A Standardized Approach to Biosolids Chemical Risk Assessment*, together with a review of the recently developed Biosolids Screening Tool (BST) and accompanying BST User Guide prepared by the EPA’s Office of Water. The White Paper, BST, and BST User Guide represent the EPA’s proposed technical screening process to identify pollutants, pollutant exposure pathways, and biological receptors of greatest concern and to support regulatory decisions regarding the need for more refined risk assessments of land-applied biosolids. [ENR](#)

Science Advisory Board (SAB) National Biosolids Panel

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Florence Anoruo	Orangeburg	SC	South Carolina State University
Jennifer Arp	Canton	GA	Cherokee County Water & Sewerage Authority
Lisa Campe	Canton	MA	Woodard & Curran, Inc.
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Greg Kester	Sacramento	CA	California Association of Sanitation Agencies
Linda Lee	West Lafayette	IN	Purdue University, Department of Agronomy
Drew McAvoy	Cincinnati	OH	University of Cincinnati
Michael J. McFarland	Logan	UT	Utah State University
Elena Naumova	Boston	MA	Tufts University
Ian Pepper	Tucson	AZ	University of Arizona
Jennifer Sahmel	Boulder	CO	Insight Exposure & Risk Sciences Group

WEAU Young Professionals IRC Fundraiser Update

During the WEAU Mid-year Conference, the YPs hosted a fundraiser to purchase reusable water bottles for refugee families who are served by the International Rescue Committee (IRC) in Salt Lake City. In addition to the water bottles, a pamphlet to handout with the water bottles was developed to educate refugees on the water treatment process and explain why tap water in SLC is safe to drink. With the funds collected during the fundraiser, WEAU was able to donate **150 water bottles** to the IRC. The IRC is extremely grateful for the water bottles and to Rebecca Yoo for developing the easily digestible and informative pamphlets! Thank you to everyone who donated time and resources to help make this fundraiser successful!

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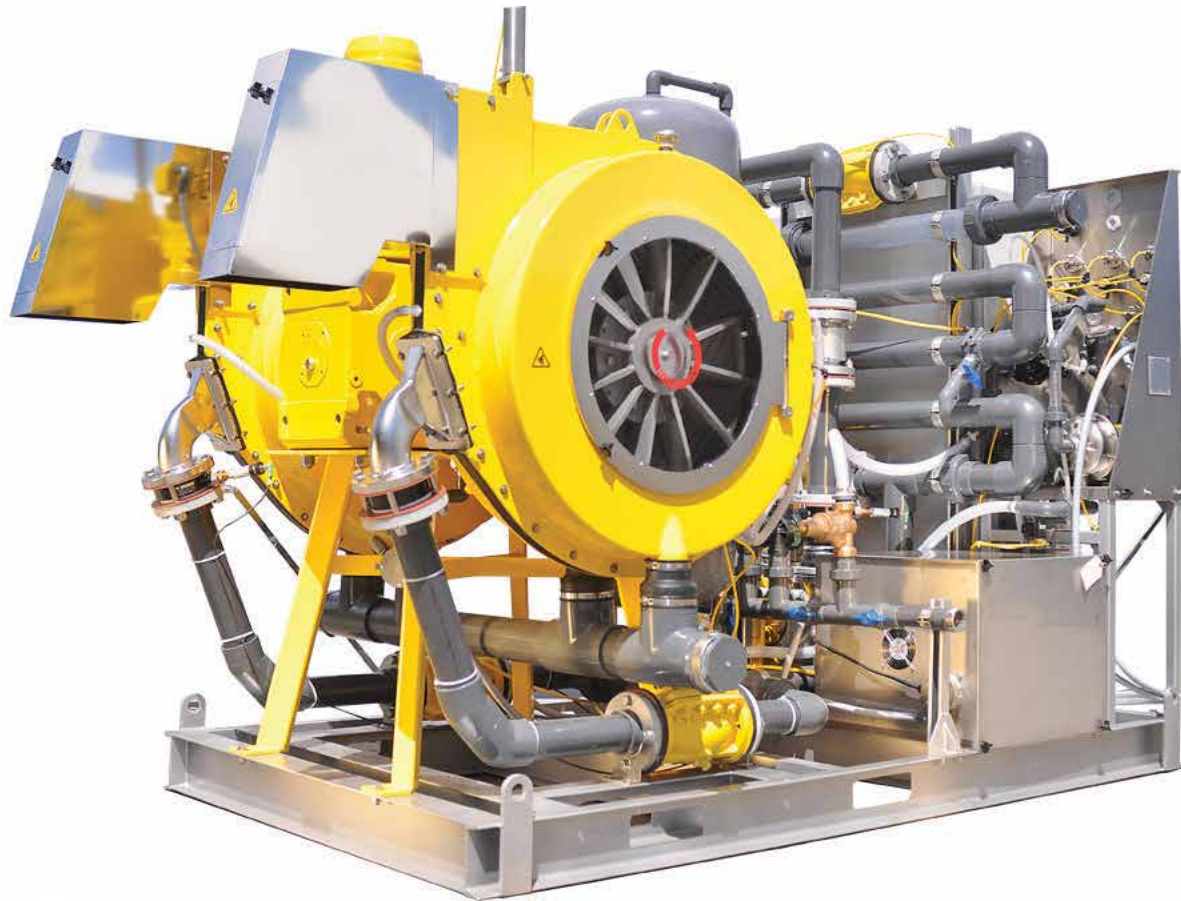
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