

SPRING  
2023

The Official Publication of the Water Environment Association of Utah

# DIGESTED news

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# 2023 WEAU ANNUAL CONFERENCE

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**INSIDE:**

[Congratulations 2022 Award Nominees](#) | [Nuisance Tripping of Motors: Are You Facing It Too?](#)



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Published by:



On behalf of the WEAU



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[www.kelmanonline.com](http://www.kelmanonline.com)

Managing Editor, **Katie Woychyshyn**

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Sarah Ward

# Annual Conference on the Horizon



**D**ear WEAU Friends,  
The Annual Conference will be here shortly. There will be many opportunities to participate in activities at the annual conference. A few of the activities you can join in at the annual conference include:


- Attending classes.
- Volunteering to moderate for a technical session.
- Watching the operator challenge competition.
- Hiking with the YPs.
- Participating in the golf tournament.
- Going to BigShots with the YPs.
- Celebrating with those who have received a WEAU award.
- Networking with your fellow sewer diggers.
- And, of course, telling stories and laughing!

WEAU is a great organization. I am lucky that I have had the opportunity of being an active member for many years and the

privilege to have served you as president this last year. Thank you for your support and faith in me to lead WEAU. At the Annual Conference Banquet, I will hand the presidency over to Sherry Sheffield. I fully support Sherry. She will do a great job leading us.

There are always ways to become involved in WEAU with one of our 30 committees, presenting, moderating, being on an ops challenge team, or even assisting at a training. If you are interested in becoming part of any committee or helping in any way, please contact me, and I will find a committee that could use your expertise.

I look forward to socializing with you at the Annual Conference! See you in April.

Sincerely,  
Sarah Ward 



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# Gross Domestic Product (GDP)

Bryan Mansell

There's been a lot of talk recently by one or more politicians about wanting more materials and goods used in America to be "made in America." This has prompted many thoughts in my mind about what it means to be "made in America" and about all the stuff we buy that is and isn't made in America. I know I'm as guilty as anyone when it comes to buying a cheaper foreign knockoff on Amazon for something that doesn't (in my mind at least) warrant higher quality. I assume that's partly why Amazon and Walmart business is so robust. They offer cheaper alternatives that are manufactured by companies that most of us can't pronounce. Americans as a whole currently don't seem to want to pay more just to have something that's made here and many probably can't afford it in our current inflation bubble. Still, if Americans want our commerce to become less dependent on other countries like China, we may all need to drink the 'American-made' Kool-Aid.

Luckily, we're not starting from zero. There is one thing Americans are already effectively producing in great abundance – something genuine, Grade A, and American-made. I'm talking about the original "gross domestic product" (now you'll never think of that term the same again), or roughly



a pound per person per day of human \$#!+. What could possibly be a truer representation of something that is not just American-made, but made by each and every proud, flag-waving American. The thought almost brings a tear to my eye (though when my kids forget to flush, or I spend time in the headworks area, admittedly, the smell sometimes does). Joking aside, I'm quite proud to work in an industry that harnesses that American-

made fecal power and carbon-rich resource, to produce environmentally beneficial, American-made products, such as rich compost and biogas, all while restoring safe water to rivers and lakes. So, with this thought in mind, I'm personally giving you permission to hang a flag on your bathroom door so you can see it and solute while you make your own contribution to the full-scale production of the American-made gross domestic product. [Dn](#)

## FIND THE HIDDEN GOLDEN SLUDGE SHOVEL!\*

Each quarter, *Digested News* has 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](mailto: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*.

\*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:  
DANIEL OLSON OF  
SNYDERVILLE BASIN WATER  
RECLAMATION DISTRICT  
FOR FINDING THE GOLDEN  
SHOVEL ON PAGE 17 OF  
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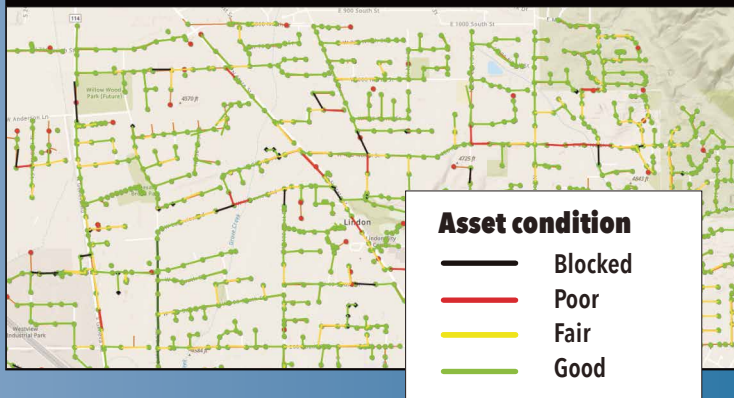
**Have feedback or suggestions?** We'd love to hear from you about what parts of *Digested News* you find helpful, or about what you'd like to see. Email us at [digestednews@weau.org](mailto:digestednews@weau.org).

# The New Standard

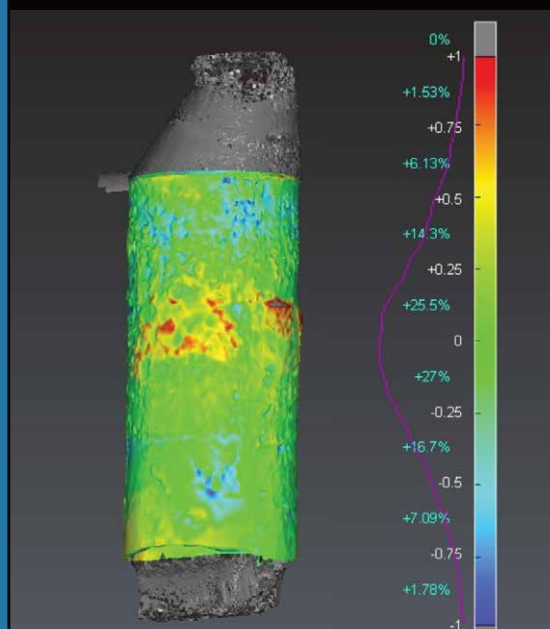


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# What Does It Take to Teach at the Collection College?

By the WEAU Collection Committee

1. **It takes \_\_\_ years of experience in the field.**
  - A. 20
  - B. 25
  - C. 30
  - D. A few
2. **It takes a teaching certificate.**
  - A. True
  - B. False
3. **You must know everything about the subject.**
  - A. True
  - B. False
4. **It helps to have a passion for the industry.**
  - A. True
  - B. False
5. **You will likely learn as much or more from your students as you teach them.**
  - A. True
  - B. False
6. **What is the present cost for classes at the Collection College?**
  - A. \$50
  - B. \$75
  - C. \$100
  - D. A pack of paper
7. **Where do the classes take place?**
  - A. Somewhere along the Wasatch Front
  - B. Wherever the instructor wants
  - C. St. George sounds good, except for the commute
  - D. All of the above
8. **Is there a demand for the class? Yes, the last class had \_\_\_ students sign up.**
  - A. 25
  - B. 35
  - C. 45
  - D. 50+

## 9. Who is the sponsor?

- A. WEF
- B. EPA
- C. WEAU
- D. DEQ

## 10. What am I getting quizzed about?

- A. Becoming the next Collection College Instructor
- B. Helping others in the industry
- C. How to make sewer school sound cool
- D. All of the above



## Answers

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

Yes, you can become the next Collection College instructor. All it takes is a willingness to lead the class through the material and answer questions that come up. If you don't know the answer, tell them you will find the answer and get back to them. It is a fun, challenging part of working in the wastewater industry. If you are interested, contact Sarah Ward, President of WEAU. [WU](#)

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# WE HAVE IT ALL

# Certification Training Quiz

By Dan Olson

1. **Sludge stabilization processes like digesters transform sludge into biosolids.**
  - A. True
  - B. False
2. **Primary sludge typically contains between 2% and 6% total solids.**
  - A. True
  - B. False
3. **The beneficial use of biosolids is regulated under 40 CFR part 258.**
  - A. True
  - B. False
4. **The time required for aerobic digestion depends on the temperature of the sludge.**
  - A. True
  - B. False
5. **Put the following solids treatment processes into the correct order:**
  - A. Dewatering
  - B. Secondary clarifier
  - C. Thickening
  - D. Digestion
6. **Screenings and grit are typically:**
  - A. Sent to a landfill
  - B. Dewatered and land-applied
  - C. Used for road base
  - D. Digested anaerobically
7. **Primary sludge consists of \_\_\_\_\_.**
  - A. Microorganisms grown during treatment
  - B. Rags, plastic, and other heavy materials
  - C. Unprocessed, settleable organic and inorganic solids
  - D. Grit and screenings
8. **Secondary sludge consists of \_\_\_\_\_.**
  - A. Microorganisms grown during treatment
  - B. Rags, plastic, and other heavy materials
  - C. Unprocessed, settleable organic and inorganic solids
  - D. Grit and screenings
9. **This class of biosolids may be made available for public takeaway.**
  - A. Class A
  - B. Class B
  - C. Class C
  - D. Class D
10. **The vector attraction reduction requirement in the biosolids 503 regulations \_\_\_\_\_.**
  - A. Limits concentrations of heavy metals in biosolids
  - B. Allows screenings and grit to be comingled with digested sludge
  - C. Reduces the likelihood that rats and insects will be attracted to finished biosolids
  - D. Prevents application of biosolids near streams and lakes
11. **Thickened sludge and biosolids dewatering are performed for this reason.**
  - A. Reduces the total volume of sludge or biosolids
  - B. Required by the discharge permit
  - C. Reduces the total mass of sludge or biosolids
  - D. Required by the 503 regulations
12. **All of the following statements about anaerobic digestion are true EXCEPT that anaerobic digestion \_\_\_\_\_.**
  - A. Reduces the amount of biosolids
  - B. Meets vector attraction reduction requirements
  - C. Is typically paired with primary clarifiers
  - D. Breaks down solids in the presence of oxygen
13. **Anaerobic digester gas contains approximately \_\_\_\_\_.**
  - A. 70% nitrogen and 22% oxygen
  - B. 65% methane and 35% carbon dioxide
  - C. 70% nitrogen and 30% carbon dioxide
  - D. 65% methane and 22% oxygen
14. **Match the process to its defining characteristic.**

A. Aerobic Digestion	1. Uses lime to increase sludge pH
B. Anaerobic digestion	2. Takes place prior to digestion
C. Thickening	3. Breaks down sludge with oxygen
D. Dewatering	4. Produces methane gas
E. Chemical stabilization	5. Produces cake of up to 50% solids
15. **This piece of equipment rapidly spins biosolids to remove water.**
  - A. Belt filter press
  - B. Rotary drum thickener
  - C. Centrifuge
  - D. heat dryer
16. **The Federal Pretreatment Act defines industrial and commercial users differently from one another.**
  - A. True
  - B. False
17. **Influent wastewater consists of domestic, industrial, and commercial wastewater as well as contributions from inflow and infiltration.**
  - A. True
  - B. False
18. **Influent flow patterns reflect activities taking place in the service area.**
  - A. True
  - B. False
19. **An operator must take a piece of equipment out of service for maintenance. They will need to bypass pump wastewater around this piece of equipment during repairs. Assuming the WRRF has a typical diurnal flow pattern for domestic wastewater, when should maintenance be scheduled to minimize the amount of bypass pumping?**
  - A. Mid-morning
  - B. After lunch
  - C. Afternoon
  - D. Late evening

20. Which type of service area is likely to see the greatest variations in influent flow over a single day?
- Town with 500 residents
  - City with separate domestic and storm sewers
  - City with more than 50,000 residents
  - Town without large commercial or industrial users
21. A WRRF receives wastewater from two ski resorts. Assuming the number of full-time residents in the service area is constant year-round, when should the operator expect to see the highest influent flows and loads?
- Spring
  - Summer
  - Fall
  - Winter
22. When water use increases in a community, the influent wastewater concentrations decrease, assuming the population served has not changed.
- True
  - False
23. An influx of stormwater from a combined sewer would likely increase average influent wastewater temperatures.
- True
  - False
24. Septic conditions in the collection system upstream of the influent flow to a WRRF can cause the influent to be darker than usual and smell like rotten eggs.
- True
  - False
25. Conductivity meters can also be used to accurately measure total dissolved solids.
- True
  - False

## Answers

1-A; 2-A; 3-B (Biosolids are regulated under Section 503 of Title 40 of the Code of Federal Regulations); 4-A; 5-Secondary clarifier, thickening, digestion, dewatering; 6-A; 7-C; 8-A; 9-A; 10-C; 11-A; 12-D; 13-B; 14-1=E; 2=C; 3=A; 4=B; 5=D; 15-C; 16-B (The Pretreatment Act does not distinguish between commercial and industrial users. It only defines domestic and industrial wastewater); 17-A; 18-A; 19-D; 20-A; 21-D; 22-A; 23-B (An influx of stormwater would likely decrease the influent temperature); 24-A; 25-B (While some conductivity meters give a TDS result, it is not a true measurement. TDS is calculated by applying a factor to the conductivity measurement. Although it is possible to build a correlation between conductivity and TDS for a particular wastewater, the only way to accurately measure TDS is by drying down a sample of filtered wastewater and weighing the residue left behind.)

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# Practice Begins

By Dustin Lewis

**T**he Operations Challenge practice started on the first of January, and we have had a great turnout of teams this year, including both returning teams and new composite teams. Everyone is really excited to get practicing.

There is one new part of the safety event this year. This new element is a virtual reality task that one guy will have to complete. It will be interesting to see how that goes for the guys. Also, after this year's WEAU Annual Conference, we are getting all new equipment for the new maintenance event that will take place as part of the National Operations Challenge to be held in Chicago. Since it's a totally new event from Vaughan, it will be fun to have everyone learn it and have something new to look forward to.

We had another great Midyear Conference this past November and the PWO would like to thank all the presenters for their great presentations, as well as the organizing committees and James Dixon for all the hard work that was put into making it a great conference. 



## Seeing the world from YOUR PERSPECTIVE

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# PWO Spotlight: Kray O'Brien

**K**ray O'Brien has been employed at Snyderville Basin Water Reclamation District (SBWRD) since 1995. In that time, he has seen a lot of changes in SBWRD and in Park City. Kray holds an Operator 4 Certification and has received the Quarter Century Award, among a few others. Kray was working at SBWRD during the 2002 Olympics, which was one of the biggest highlights of his career. It took a year of preparation work to get ready for the Olympics to come to Park City, and he was a pivotal part in the preparation, which contributed to him being awarded the Collections Operator of the Year Award. Kray has been on the combination cleaning truck for over 24 years and has trained most of the SBWRD employees on how to clean sewers. He has been instrumental in identifying problem areas and mapping them out for SBWRD and is one of the most knowledgeable people at Snyderville Basin when it comes to the history of the collection system and how it flows. Kray's current assignment is marking Bluestakes, which keeps him very busy all year long.

Kray is from Hoystville, UT, where he lives with his wife, Val. He has a daughter, a son, and four grandchildren. He likes to spend time with his family going hunting and shooting, attending his grandchildren's games and events, riding side-by-sides, and cruising his 1945 8N Ford tractor around.



Kray O'Brien and his Welsh pony, Turbo, out for a drive.

He also likes to take his family through the neighborhood in his horse-drawn wagon that he built. This wagon is pulled by his trusty steed, a Welsh pony called "Turbo." Kray has served and currently serves on a few boards in his county including the Summit County Cattleman Council, the Summit County Soil Council, and the Summit County Weed Board. [dm](#)

“Kray was working at SBWRD during the 2002 Olympics, which was one of the biggest highlights of his career. It took a year of preparation work to get ready for the Olympics to come to Park City, and he was a pivotal part in the preparation, which contributed to him being awarded the Collections Operator of the Year Award.

An advertisement for Forsgren Associates, Inc. The background is a photograph of a wastewater treatment facility with several large circular tanks and industrial buildings. In the distance, there are snow-capped mountains under a cloudy sky. The text is overlaid on the image.

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# WEAU Young Professionals: Building the Future of Our Industry

The WEAU Young Professionals (YPs) rung in the new year with renewed energy and motivation to make 2023 our greatest year yet. We returned to in-person events in 2022 with great success! The YPs hosted the annual summer Bees game, a Mid-Year Conference dinner, and in-person YP lunches to discuss and create new goals for the group.


Consequently, the YP Committee has the following goals for 2023-2024:

- Increase Young Professional participation within WEAU.
- Provide opportunities for networking.
- Provide opportunities to enhance technical knowledge.
- Provide community within the industry.

The YPs have already made headway on their 2023 goals by hosting a social and educational brewery tour and a YP Involvement Panel. The YP Involvement Panel focused on giving an overview of the WEAU organization, how it operates on a completely volunteer basis, how the organization positively impacts its members,

and shared opportunities for YPs to become more involved. Upcoming monthly events include a mix of technical presentations, facility tours, career building lunch-n-learns, and socials. If you are interested in volunteering for a WEAU Committee position or hosting a monthly event, please contact Lauren Schmidt ([lschmidt@jub.com](mailto:lschmidt@jub.com)) for a current list of opportunities.

Whether you are a water/wastewater young professional working in operations, consulting, government, sales, or manufacturing, we invite you to join our community! The ultimate goal of the Young Professionals is to provide a community where we can grow together in this industry.

Members can stay up to date on YP activities by checking the WEAU website calendar. WEAU YP events are open to WEF/WEAU members and non-members under the age of 35 or who have less than seven years of experience in the water/wastewater industry. For more information on how to become a member or to get involved with the YP group, please contact Amanda Stoudt ([astoudt@brwncald.com](mailto:astoudt@brwncald.com)). 



## 2023 WEAU SUMMER PICNIC

FRIDAY, SEPTEMBER 8th  
vs. THE TACOMA RAINIERS  
GATES OPEN AT 5:35 PM; FIRST PITCH AT 6:35 PM

### SALT LAKE BEES

Come on down to the ballpark to enjoy a picnic & summer baseball game with our group!

# SAVE THE DATE





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Boise, ID  
Salt Lake City, UT  
Sacramento, CA  
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# 2023 WEAU ANNUAL CONFERENCE

**APRIL 25-28, 2023 | Dixie Center, St. George, UT**  
Stay updated at [www.weau.org/annual\\_conference](http://www.weau.org/annual_conference).

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# WEAU PRE-CONFERENCE WORKSHOP

TUESDAY, APRIL 25, 2023

**Effective Utility Management Workshop: Your Path to Sustainability**

Coordinators: John Mackey and Glen Lischeske in partnership with the US EPA

7:30 am-8:00 am Registration and Continental Breakfast  
 8:00 am-12:00 pm Workshop Session

# 2023 WEAU ANNUAL CONFERENCE AGENDA

TUESDAY, APRIL 25, 2023

7:00 am-4:00 pm Registration  
 7:30 am-8:00 am Continental Breakfast (*Lobby*)  
**8:00 am-12:00 pm Pre-Conference Workshop**  
 9:00 am-4:00 pm Vendor & Booth Setup  
 11:00 am-1:00 pm Ops Challenge Setup  
 1:00 pm Ops Challenge Process Test  
**1:30 pm-5:30 pm Golf Tournament**  
**1:30 pm-5:30 pm NASTT Skeet Shoot**  
*(Purgatory Clay Sports)*  
**2:00 pm-4:00 pm YP Group Hike**

WEDNESDAY, APRIL 26, 2023


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**  
 Ops Challenge Pizza Party and Fiesta Fun Night (Send RSVP to Dustin Lewis, [dlewis@sburd.org](mailto:dlewis@sburd.org))  
 6:00 pm-8:00 pm YP Social (*BigShot Golf*)

THURSDAY, APRIL 27, 2023

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**  
 10:00 am-3:30 pm Blood Drive (*Exhibit Hall*)  
 12:00 pm-1:20 pm Business Lunch (*Exhibit Hall*)  
**1:30 pm-4:45 pm Technical Sessions C**  
**6:00 pm-8:00 pm Banquet and Awards (*Ballroom*)**


FRIDAY, APRIL 28, 2023

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




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# 2023 ANNUAL CONFERENCE OPERATIONS CHALLENGE

## TUESDAY, APRIL 25, 2023

11:00 am Equipment Set Up (For those who can make it)  
1:00 pm Process Test (For all teams)

## WEDNESDAY, APRIL 26, 2023

8:00 am Lab, Safety, Pump, Collection  
12:00 pm Lunch (Resume competing after lunch and equipment removal)  
5:00 pm-6:00 pm Pizza Dinner at Fiesta Fun  
6:00 pm-9:00 pm Fiesta Fun Adventure

## THURSDAY, APRIL 27, 2023

6:00 pm Banquet Dinner



# OPERATOR CHALLENGE PIZZA AND FAMILY FUN

5:00 PM-9:00 PM | APRIL 26, 2023

## FIESTA FUN

171 East 1160 South  
St. George, UT 84770

## WELCOME TO OPERATOR CHALLENGE COMPETITORS/JUDGES AND FAMILIES.

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

RSVP to Dustin Lewis at [dlewis@sbwr.org](mailto:dlewis@sbwr.org).



Photos from [www.fiestafuncenter.com](http://www.fiestafuncenter.com).

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# Join us for the 2023 WEAU ANNUAL GOLF TOURNAMENT

**FORMAT:**

Four-person scramble

**WHEN:**

Tuesday, April 25, 2023  
Shotgun start at 1:30 pm

**WHERE:**

Sunbrook Golf Course  
St. George, UT

**GREEN FEES:**

\$75.00 per person (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](mailto:jbeckman@bowencollins.com)  
801-495-2224

**REGISTRATION FORMS AND FEES ARE DUE BY APRIL 11, 2023**

Register online at [www.weau.org](http://www.weau.org) or by returning this registration form to Jeff Beckman, along with a check payable to WEAU Golf Tournament. Contact Jeff Beckman at 801-495-2224 with questions. We will match single players to fill foursomes.

<b>Name:</b> _____	<b>Name:</b> _____
Phone:_____	Phone:_____
<b>Name:</b> _____	<b>Name:</b> _____
Phone:_____	Phone:_____

**2023 Rocky Mountain Chapter NASTT**



6<sup>th</sup> Annual  
**Sporting Clay Shoot**

Tuesday, April 25<sup>th</sup> 2023 | Purgatory Clay Sports  
Lunch from 1:30pm-2:30pm | Shotgun start at 2:30pm  
Call Mike Kobe if you need a later start time

**\$10/person, includes 50 targets. Please bring your own ammunition. A limited amount of ammunition may be available for purchase on-site.**

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- From St. George,
- Take I-15 North to Exit #16.
- Go South on SR-9 to the second set of stoplights.
- Turn right (South) and follow the Southern Utah Shooting Sports Park signs.

**What you will need**

- A Shotgun:** Bring your own or rent one at the club for \$5.00
- Ear and Eye Protection:** All people at the range are required to wear ear and eye protection at all times.
- Hat:** We can't predict where broken clays will land after they are shot so we recommend a hat to protect your face.
- Clothes:** Wear good shoes/boots that will allow you to walk the course in comfort. We discourage the use of sandals. Comfortable clothes that allow you free movement are best.

**Prizes for 1st, 2nd, and last place scores!**

**Register**  
<https://conta.cc/3YnLHXn>  
**Watch the video and fill out the disclaimer**  
[www.purgatoryclays.com/safety](http://www.purgatoryclays.com/safety)

**Contact:**  
Mike Kobe  
for more information:  
[MKobe@brwncald.com](mailto:MKobe@brwncald.com)  
801.803.4716

# YP Events

## 2023 WEAU ANNUAL CONFERENCE

Tuesday  
April 25th



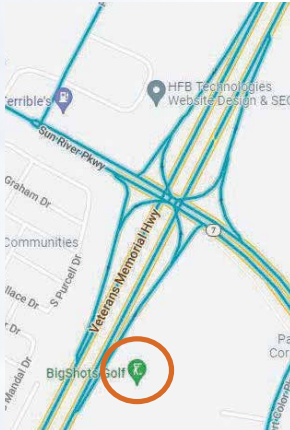
### Group Hike

2:00pm — 4:00pm

**Hilton Garden Inn Parking Lot**  
**1731 South Convention Center Drive**  
**Saint George, UT 84790**

The YPs will head out Tuesday afternoon for a nearby hike at Owen's Loop trail. Meet us out front of the Hilton Garden Inn at 2:00pm to organize carpools. Bring appropriate shoes, clothing, water, and sunscreen/hat!

Wednesday  
April 26th



### YP Social @ BigShots Golf

6:00pm — 8:00pm

**1108 Black Mountain Dr,**  
**St. George, UT 84790**

Join us for 2 hours of game play, dinner, and dessert! Registration and event fee (\$20) for this event is required. Please visit the WEAU website for registration details. Event limited to 40 attendees.

*Directions: Traveling south on I-15, take Exit 2 to Sun River Pkwy and turn left.*

*BigShots will be on the right hand side of the road.*

Thursday  
April 27th

### YP Networking Lunch

12:00pm — 1:30pm

**Dixie Convention Center — Exhibit Hall**

Grab some lunch in the exhibit hall and look for round tables labeled "Young Professionals" to network and play a short game with YPs.



### Blood Drive

10:00am — 3:30pm

**Dixie Convention Center — Exhibit Hall**

The American Red Cross will be on site Thursday for a blood drive. Sign up for a time slot using the QR code.

Friday  
April 28th

### Saint George Plant Tour

8:30am — 11:00am

**Dixie Convention Center — Registration Desk**

Meet us at the front registration desk at 8:30am to organize carpools. We will return to the convention center by 11:00am in time for the final presentations and raffle. Attendees must bring their own hard hat, safety vest, and appropriate shoes. Registration required, tour limited to 20 attendees.



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know we must execute our work safely while consistently meeting customer expectations in quality, cost, and schedule.

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Taking best practice and innovative ideas from our diversified market experience and incorporating them into our work processes allows for customized performance, rather than a one size fits all approach.

### **Our Team Members are Our Foundation**

We employ an extensive pool of trained and experienced team members that are

committed to supplying our customers with the highest quality services possible.

In today's economy, it has never been more imperative to have access to competent contractors. Allow us the opportunity to implement our creative and innovative solutions to your most unique situations.

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- Push Camera Lateral Inspections
- Lateral Launching – Cross Bore Inception
- Underground Line Locating
- Raven Lining Systems – Certified Applicators
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- Trenchless Repairs
- Infiltration Repairs
- Lateral Rehab
- Manhole Rehab
- Manhole/Wetwell Lining - Cementitious
- Manhole/Wetwell Lining - Epoxy
- Pipe and Manhole Cleaning
- Pipe and Manhole Grouting
- Pipe and Manhole Televising & Inspection

## TECHNICAL PROGRAM SCHEDULE

WEDNESDAY, APRIL 26, 2023

8:00 am-9:00 am	REGISTRATION   OPENING RAFFLE TICKETS				
8:00 am-12:00 pm	OPERATOR CHALLENGE   EXHIBITS OPEN				
12:00 pm-1:30 pm	LUNCH   OPENING RAFFLE				
	<b>Entrada A</b>	<b>Entrada B &amp; C</b>	<b>Sunbrook A</b>	<b>Sunbrook B</b>	<b>Sunbrook C</b>
<b>Topic</b>	<b>Water Quality</b>	<b>Operations</b>	<b>Residuals and Biosolids</b>	<b>Safety and Security</b>	<b>Wastewater Facilities</b>
1:30 pm-2:05 pm	<b>Distribution System Water Quality Improvements with Implementation of Active Tank Mixing</b>	<b>Combination Sewer Truck Maintenance</b>	<b>Regional and Centralized Biosolids Management Make Cents</b>	<b>A Deep Dive into Cyber Liability and Pollution Liability Insurance for Water Environment Organizations</b>	<b>Wastewater Screening Solutions for Smaller Installations</b>
	Jeff Rhodes, UGSI Solutions	Evan Housley, Olympus Equipment	Mohammad Abu-Orf, Hazen and Sawyer	Brian Child, Olympus Insurance	Dave Barkey, JWC Environmental
<b>Topic</b>	<b>Water Reclamation and Reuse</b>	<b>Operations</b>	<b>Residuals and Biosolids</b>	<b>Financial Management</b>	<b>Wastewater Facilities</b>
2:10 pm-2:45 pm	<b>Lagoon Management</b>	<b>Do I Need Grit Removal?</b>	<b>Biosolids – Making a Solid Plan in Uncertain Times</b>	<b>What You Don't Know About Blue Stakes But Should</b>	<b>Densified Activated Sludge With and Without Physical Selection</b>
	Kathleen Kelly, BioLynceus	Eric Tobin, Hydro International	Susan Spore, Brown and Caldwell	Spence Felsted, Blue Stakes of Utah 811	Bryan Atieh, Hazen and Sawyer
2:45 pm-3:30 pm	BREAK				
<b>Topic</b>	<b>Water Reclamation and Reuse</b>	<b>Operations</b>	<b>Residuals and Biosolids</b>	<b>Financial Management</b>	<b>Wastewater Facilities</b>
3:30 pm-4:05 pm	<b>Role of Water Reclamation Facilities in Managing PFAS Circulation through the Water Cycle</b>	<b>Real World Considerations for Pump Design, Operation, and Troubleshooting</b>	<b>Enhancing Anaerobic Digestion Performance with the Microbial Hydrolysis Process</b>	<b>Financial Planning Made Easy</b>	<b>Sustainable Effluent Energy Recovery at SLC WRF</b>
	Vijay Sundaram, AECOM	Steve Truitt, Penn Valley Pump Co.	Dave Parry, Jacobs Engineering	Andy Burnham, Stantec	Grant Davies, AECOM
<b>Topic</b>	<b>Water Reclamation and Reuse</b>	<b>Operations</b>	<b>Residuals and Biosolids</b>	<b>Financial Management</b>	<b>Wastewater Facilities</b>
4:10 pm-4:45 pm	<b>Water Reuse Alternatives in Arid Western US</b>	<b>Pump Curves Made Simple (No, Seriously)</b>	<b>PFAS Separation and Destruction from Municipal Wastewater Biosolids: Alternatives Evaluation, and Cost Estimates</b>	<b>SulFeLox: Low Hazard Sulfide Control</b>	<b>Install Advanced Grit Removal Technology in Existing Grit Basins</b>
	Kelsey Wagner, AE2S	Matt Jensen, Cascade Energy	Derya Dursun, Hazen and Sawyer	Brenda Blake, USP Technologies	Simon Randle, HUBER

## TECHNICAL PROGRAM SCHEDULE

### THURSDAY, APRIL 27, 2023 (MORNING)

REGISTRATION					
	Entrada A	Entrada B & C	Sunbrook A	Sunbrook B	Sunbrook C
Topic	Water Reclamation and Reuse	Operations Exam Preparation	Nutrient Removal	Collection Systems	Digital Water
8:00 am-8:30 am					
8:30 am-9:05 am	<b>WEF Delegate Presentation</b>	<b>Operations Exam Preparation</b>	<b>Biohacking BNR: Getting the Most Out (Literally) of Your Wastewater</b>	<b>Master Planning for Sewer Collection Systems with an Emphasis on Redevelopment, Hydraulic Modeling, Asset Management, Impact Fees, and Rates</b>	<b>Modernizing Operations Management Using Digital Tools</b>
	WEF Delegate	TBA	Bethany Burton, WesTech Engineering	Wyatt Andersen, Bowen Collins & Associates	Eric Smith, APCO Inc.
Topic	Water Reclamation and Reuse	Operations Exam Preparation	Nutrient Removal	Collection Systems	Digital Water
9:10 am-9:45 am	<b>Four Years and Four Offices: Reflecting on Designing a New 48MGD Water Reclamation Facility</b>	<b>Operations Exam Preparation</b>	<b>Biological Phosphorus Removal Intensification and Optimization</b>	<b>Quality Assurance for CIPP Liners: A Team Effort</b>	<b>Realizing Plant Upgrade Savings Through Instrumentation Innovation Case Study on New Magnetic Flowmeter Technology</b>
	Michelle Barry, Salt Lake City Department of Public Utilities	TBA	Joseph Rohrbacher, Hazen and Sawyer	Cedar Daniels, Bowen Collins & Associates	Nick Hanson, Endress + Hauser
9:45 am-10:30 am	BREAK				
Topic	Water Reclamation and Reuse	Operations Exam Preparation	Nutrient Removal	Collection Systems	Digital Water
10:30 am-11:05 am	<b>Pure SOJO Direct Potable Reuse (DPR) Project Update</b>	<b>Operations Exam Preparation</b>	<b>Enhanced Biological Nutrient Removal with Minimal Recycles in a Phased Activated Sludge System</b>	<b>Design Considerations Associated with the HDPE Piping that Connects the Central Valley BNR Project</b>	<b>Cybersecurity for IT and OT Network: A Primer</b>
	Randy Zollinger, Carollo Engineers	TBA	Manuel de los Santos, Aqua-Aerobic Systems, Inc.	Michael Kobe, Brown and Caldwell	Jason Stansfield, North Davis Sewer District
Topic	Water Reclamation and Reuse	Operations Exam Preparation	Nutrient Removal	Collection Systems	Digital Water
11:10 am-11:45 am	<b>Carbon – the Currency of a Modern Water Reclamation Facility</b>	<b>Operations Exam Preparation</b>	<b>No Regrets with Sidestream Phosphorus</b>	<b>Preventing Flushable Wipes Clogs in Smaller Collection Systems Case Studies</b>	<b>Making Digital Transformation Affordable</b>
	Rick Kelly, Brown and Caldwell	TBA	Aaron Britton, CVWRF	Charles Wilson, Duperon Corporation	Joseph Kamalesh, Stantec



## TECHNICAL PROGRAM SCHEDULE

THURSDAY, APRIL 27, 2023 (AFTERNOON)

TECHNICAL PROGRAM SCHEDULE					
THURSDAY, APRIL 27, 2023 (AFTERNOON)					
12:00 pm-1:30 pm	LUNCH BREAK				
	<b>Entrada A</b>	<b>Entrada B &amp; C</b>	<b>Sunbrook A</b>	<b>Sunbrook B</b>	<b>Sunbrook C</b>
<b>Topic</b>	<b>Water Reclamation and Reuse</b>	<b>Operations Exam Preparation</b>	<b>Nutrient Removal</b>	<b>Collection Systems</b>	<b>Digital Water</b>
1:30 pm-2:05 pm	<b>From Concept to Pilot: How to Confirm Feasibility of Your Reuse Project</b>	<b>Operations Exam Preparation</b>	<b>Smarter Treatment Mixing Technology and Process Optimization</b>	<b>Utah's Foothills City Installs First Direct In-Line Pumping Technology</b>	<b>Importance of Electrical Systems Testing and Commissioning: A Case Study on a CVWRF Project</b>
	Tyler Nading, Jacobs	TBA	Alden Meade, Xylem Inc.	James Huck, Industrial Flow Solutions	Navneet Prasad, CVWRF
<b>Topic</b>	<b>Water Reclamation and Reuse</b>	<b>Operations Exam Preparation</b>	<b>Nutrient Removal</b>	<b>Collection Systems</b>	<b>Digital Water</b>
2:10 pm-2:45 pm	<b>Orem Water Reclamation Facility (OWRF) Reuse Project</b>	<b>Operations Exam Preparation</b>	<b>The Balancing Act of Biological Nutrient Removal and Chemical Use with Membrane Bioreactors</b>	<b>Cured-In-Place Pipe: A Primer for Design, Installation, and Acceptance</b>	<b>Empowering a Connected and Engaged Workforce through Digital Transformation</b>
	Jenny Calderon, Water Works Engineers	TBA	Kelsey Wagner, AE2S	Brad Conder, Lithos Engineering	Benjamin Stanford, Hazen and Sawyer
2:45 pm-3:30 pm	BREAK				
<b>Topic</b>	<b>Water Reclamation and Reuse</b>	<b>Operations Exam Preparation</b>	<b>Nutrient Removal</b>	<b>Collection Systems</b>	<b>Digital Water</b>
3:30 pm-4:05 pm	<b>Water Reuse in Utah</b>	<b>Operations Exam Preparation</b>	<b>Upgrading Lagoon-Based Treatment Systems to Meet More Stringent Limits for BOD, TSS, and Nutrient Removal</b>	<b>Characterizing Sewer Flows</b>	<b>Applications for Smart Sensors in Water and Wastewater</b>
	Andrew Pompeo, Utah DWQ	TBA	Tom Birkeland, Lemna Environmental Technologies	Joseph Kamalesh, Stantec	Rob Bebout, Stantec
<b>Topic</b>	<b>Water Reclamation and Reuse</b>	<b>Operations Exam Preparation</b>	<b>Nutrient Removal</b>	<b>Collection Systems</b>	<b>Digital Water</b>
4:10 pm-4:45 pm	<b>Three Birds with One Stone: Magna Water District to Achieve Multiple Benefits with New Secondary Reuse System</b>	<b>Operations Exam Preparation</b>	<b>Wastewater Aeration and Blower Technologies</b>	<b>Inverted Sewer Siphon: A Solution to a Screw LiR Station</b>	<b>New Technologies Enabling Condition-Based Maintenance for Collection Systems</b>
	Nate Rogers, Bowen Collins & Associates	TBA	Rick Barile, Sulzer Pump Solutions Inc.	Andee Guy, Bowen Collins & Associates	Eric Petersen, RH Borden

## TECHNICAL PROGRAM SCHEDULE

FRIDAY, APRIL 28, 2023

REGISTRATION					
	Entrada A	Entrada B & C	Sunbrook A	Sunbrook B	Sunbrook C
Topic	Asset Management	Operations Exam Preparation	Project Delivery	Nutrient Removal	Wastewater Facilities
8:00 am-8:30 am					
8:30 am-9:05 am	<b>Life Cycle Costs for Wastewater Pumping Systems</b>	<b>Operations Exam Preparation</b>	<b>Advantages of Preconstruction Services for Capital Projects: An Electrical Approach</b>	<b>Teaching an Old Dog New Tricks: Troubleshooting and Optimizing Chlorine Disinfection Systems</b>	<b>Enhanced Domestic Primary Wastewater Treatment Utilizing Pile Cloth Media Filtration for Operational Savings and Sustainability</b>
	Aaron Terry, Xylem	TBA	Michael Hamilton, Skyline Electric Company	Brian Hilt, CDM Smith	John Dyson, Aqua-Aerobic Systems, Inc.
Topic	Asset Management	Operations Exam Preparation	Project Delivery	Nutrient Removal	Wastewater Facilities
9:10 am-9:45 am	<b>Asset Management Plans: Balancing the Right Level of Effort</b>	<b>Operations Exam Preparation</b>	<b>Executing Projects During Unsettled Times: Thinking Outside the Box</b>	<b>Timeless Leadership Principles That Move the Needle</b>	<b>Wear Determination in Multi-Disc Screw Press</b>
	Ryan Dooley, Brown and Caldwell	TBA	Justin Thorne, Archer Western Construction	Rhett Butler, Skyline Electric Company	Sergiy Pesin, Esmil
9:45 am-10:30 am	BREAK				
Topic	Asset Management	Operations Exam Preparation	Project Delivery	Nutrient Removal	Wastewater Facilities
10:30 am- 11:05 am	<b>Risk Management in Water and Wastewater (Novice)</b>	<b>Operations Exam Preparation</b>	<b>Construction Management Strategies: Inspection 101 and Digital Tools</b>	<b>Is Nitrogen Management Really a Challenge in POTWs: Innovations and Examples from Local WWTPs</b>	<b>Install Advanced Grit Removal Technology in Existing Grit Basins</b>
	Skyler Rember, Cedar City Corp.	TBA	Ryan Overman, Brown and Caldwell	Dr. Ramesh K Goel, University of Utah	Simon Randle, HUBER
Topic	Asset Management	Operations Exam Preparation	Project Delivery	Nutrient Removal	Wastewater Facilities
11:10 am-11:45 am	<b>Risk Management in Water and Wastewater (Advanced)</b>	<b>Operations Exam Preparation</b>	<b>Construction Manager/General Contractor (CM/CG) Delivery for First-time Users</b>	<b>Student Presentation</b>	<b>Keeping Pace with Current Dynamic State of UV Disinfection</b>
	Skyler Rember, Cedar City Corp.	TBA	Jeremy McVey, Haskell	TBA	Romeo Vela, Glasco UV LLC

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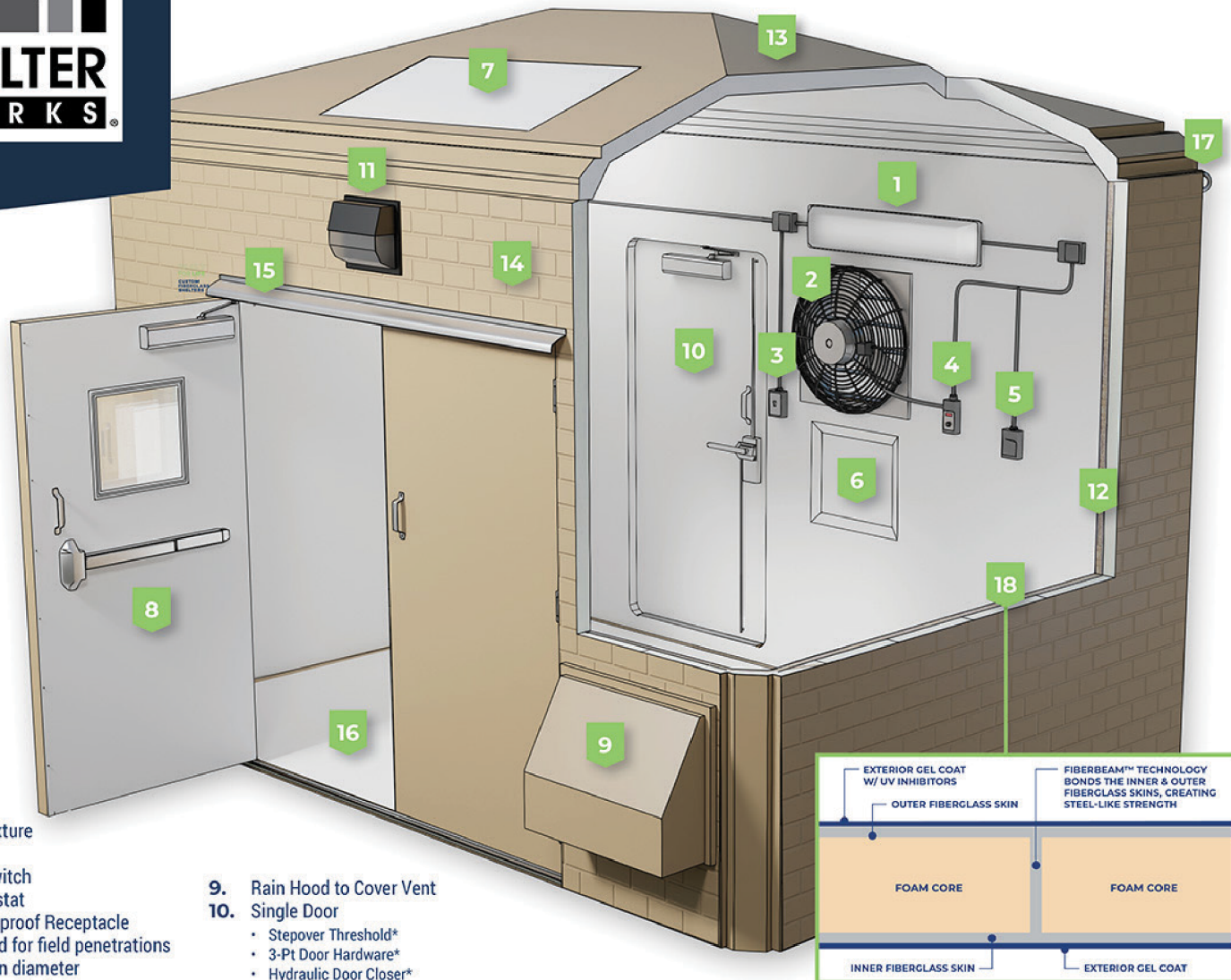
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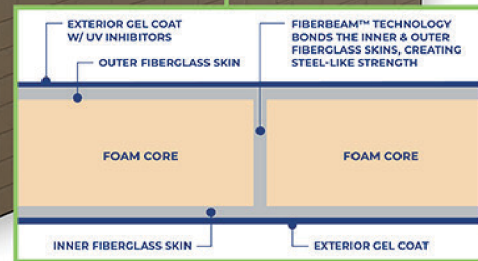
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# Congratulations 2022 Award Nominees

Ash Creek Special Service District  
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 Magna Water District  
 Orem City Water Reclamation Facility  
 Plain City  
 Salem City Water Reclamation Facility  
 Snyderville Basin Water Reclamation District  
 Timpanogos Water Reclamation Facility  
 Abbey Murnahan, North Davis Sewer District  
 Allison Taylor, Salem WRF  
 Austin Petersen, Central Valley WRF  
 Beau Chadwick, Timpanogos SSD  
 Bradley Johnson, Ash Creek SSD  
 Brent Jones, Payson City  
 Brody Kinder, Eagle Mountain City WRF  
 Chris Smith, Jordan Basin WRF  
 Cody Snyder, Snyderville Basin WRD

Colby Bryant, Timpanogos SSD  
 Dennis Byington, North Davis Sewer District  
 Eric McPhie, Snyderville Basin WRD  
 Eric Price, Central Valley WRF  
 Fred Phillips, Midvalley Improvement District  
 Gary Darin Clark, Lehi City  
 Glenn Warner, Snyderville Basin WRD  
 Heath Ruesch, Ash Creek SSD  
 Jacob Nostrom, Springville City  
 Jeff Edgington,  
 Mount Olympus Improvement District  
 Joel Thompson, Jordan Basin WRF  
 John Wallace, West Haven SSD  
 Josh Hunsaker, Central Valley WRF  
 Kerry Lee, North Davis Sewer District  
 Lance Smith, Central Weber SID  
 Lauren Schmidt, J-U-B Engineers  
 Logan Murphy, Ash Creek SSD

Mario Campos, Ash Creek SSD  
 Mark Campbell, Central Weber SID  
 Matt Hunter, Magna Water District  
 Nate Cloward, Central Davis Sewer District  
 Navneet Prasad, Central Valley WRF  
 Richard Whitaker, Central Weber SID  
 Robert Ivie, Timpanogos SSD  
 Samuel Grimes, Timpanogos SSD  
 Scott Beck, Magna Water District  
 Scott Vineyard, North Davis Sewer District  
 Sean Fischer, Central Valley WRF  
 Shane Gunnerson, City of Provo  
 Shane Petty, North Davis Sewer District  
 Steve Lloyd, Jordan Basin WRF  
 Tim Lindsay, Logan Regional WRF  
 Troy Meyer, Tooele City  
 Weston Shelley, Lehi City  
 Wooten Redmond, Timpanogos SSD

The Awards Committee would like to thank everyone that submitted over 60 nominations for 2022. We had nearly 50 people involved in interviewing the nominees. We are appreciative of the time and consideration that goes into selecting the winners. Tiffini Adams would also like to thank Matt Wiest for his years leading the Awards Committee and for his mentorship while passing the baton. [DN](#)

*Congratulations to all the nominees and winners!*

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# Nuisance Tripping of Motors: ARE YOU FACING IT TOO?

By Navneet Prasad, Electrical Controls Engineer, CVWRF and WEAU Digital Water Committee Chair

**T**he recently upgraded headworks at Central Valley Water Reclamation Facility has experienced nuisance tripping of circuit breakers on a few of the bar screens and associated equipment. Nuisance tripping is an event when the high motor inrush currents, which occur during motor start-up, may cause the associated overload protection devices to trip. During our investigation, we reviewed the Power Systems Coordination Study and analyzed the trip settings of the associated overload protection devices – in this case, the circuit breakers. To prevent equipment stoppage and minimize operator frustration, we were obliged to set the high motor current protection (HMCP) magnetic circuit breaker above the implied trip setting requirements found in the coordination study. Now, the system runs with very infrequent nuisance tripping, but did we do the right thing? Have we fixed the issue? The answer is no. We might have treated the symptom for the moment, but it could have negative long-term impacts. Let's look at a few of the reasons for this and some alternative solutions.

## What is Inrush Current and Why is it So Much Higher than LRC?

Inrush current is a very high, momentary surge of current that an AC induction motor experiences when it is switched on. Locked rotor current (LRC) is the current a motor draws when it has not started to move or when the rotor is blocked. Inrush current and LRC are sometimes used

interchangeably, but that's not always the case. It can refer to different phenomena depending on context. LRC is not the only component of inrush current.

LRC remains constant so long as the rotor is not moving, which means it is a steady-state current. Motors being highly inductive loads, generate an initial transient (short-lived) response, which causes the load to draw more current. When voltage is near zero, steady-state LRC is symmetrical. The LRC curve is no longer symmetrical after the initial transient response – thus giving it the name “asymmetrical offset,” which usually lasts only a few cycles as the current settles to a normal LRC and dies off as the motor begins to rotate (Figure 1).

There is no asymmetrical offset if the circuit is energized at a voltage maximum, so the inrush current is essentially the LRC for that current phase. However, the initial inrush current is made completely asymmetrical if the circuit is energized when the voltage is zero, that is, shifted from the nominal current axis (Figure 2), which makes the inrush current greater than the LRC for that current phase.

With a three-phase system, the odds of one of the phases being at or near voltage zero when starting a motor is very high, which explains the source of nuisance tripping. According to the National Electrical Manufacturers Association (NEMA), the actual asymmetrical inrush

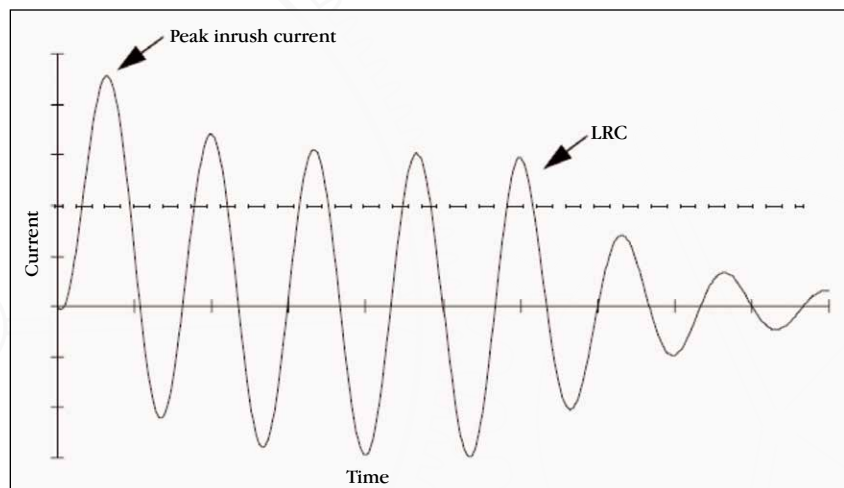


Figure 1: The initial spike in current is the inrush current, which quickly decreases to the level of the motor's locked rotor current (LRC) before finally reaching the normal operating current. (Image: Electrical Engineering Portal)

“ Nuisance tripping is an event when the high motor inrush currents, which occur during motor start-up, may cause the associated overload protection devices to trip. ”

current could be as much as two times the LRC. An HMCP circuit breaker (that is set based on the LRC) used with a high-efficiency motor will experience nuisance tripping during energizing. Thus, as per National Electrical Code (NEC), the HMCP circuit breaker may be set 13 times full load current (FLC), but the inrush could be much higher, close to 18 times the FLC.

**Effects of High Inrush Current**

According to Adventech, “The amount of current drawn by the motor during startup is also influenced by the resistance of the stator windings. Newer, high-efficiency motors – such as IE3 premium efficiency versions – have lower winding resistance (to reduce I2R losses), so inrush current can be an even more significant problem in these designs than in older, lower-efficiency motors.”

As we saw at CVWRF, a high inrush current can cause nuisance tripping of a protective device, which can lead to motor damage. Voltage dips in the supply line can also be caused due to high inrush current, which can affect other equipment, or even prevent the motor from starting properly. It could also lead to high torque production at startup, which can cause a sudden, severe acceleration that damages mechanical systems – sometimes as much as twice the rated torque.

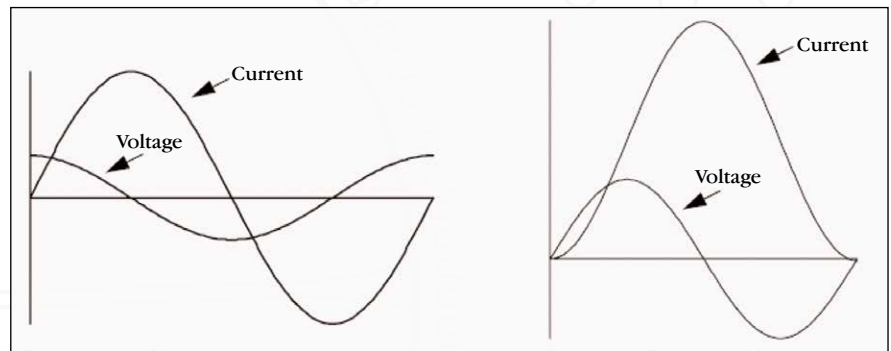


Figure 2: First cycle current can differ greatly depending on what point on the voltage wave the circuit is energized.



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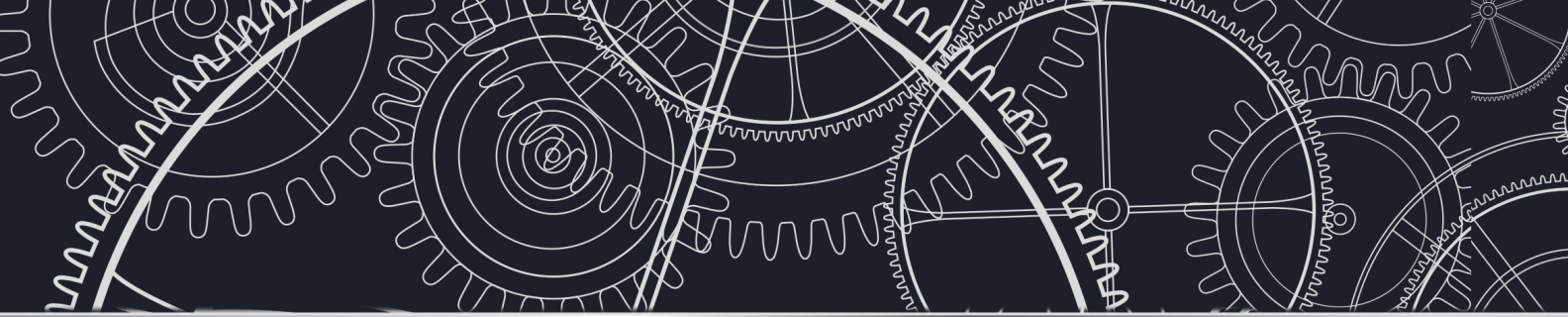
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“With a three-phase system, the odds of one of the phases being at or near voltage zero when starting a motor is very high, which explains the source of nuisance tripping.”

**What is the Solution to this Problem?**


As I mentioned earlier, the immediate solution we implemented was to notch up the breaker protection settings above the recommended settings. However, that is not a great solution because it could have a long-term effect on the health of the associated equipment. During my research, some recommendations were suggested as follows.

- If the MCC and the equipment are already installed, a few options are:
1. Choosing a higher instantaneous trip range HMCP circuit breaker.
  2. Substituting a thermal magnetic breaker with a higher instantaneous trip range.

If still in the planning stages, consider the following


- Ask the motor manufacturer for a complete set of specifications and make sure you request the actual maximum inrush current along with the FLC and/or LRC ratio.
- Confirm the motor is built as per NEMA standards.
- Nominal voltage should not exceed more than 2% or 3%.
- Specify motors with inrush current to FLC ratios, preventing a violation of the NEC.

If you are encountering such problems at your site or have come across a similar problem, do share your experience with us,

including all troubleshooting measures you have taken. Please reach out to me at [prasadn@cwurf.org](mailto:prasadn@cwurf.org). 

**References**

- Problem of motor protection and high motor inrush currents ([www.electrical-engineering-portal.com](http://www.electrical-engineering-portal.com))
- What is inverse time tripping? Are circuit breakers inverse time trip? | Schneider Electric USA
- What is inrush current in an AC motor and why does it matter? ([www.motioncontroltips.com](http://www.motioncontroltips.com))
- Difference between ie1, ie2, ie3, and ie4 | ElectGo



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We all strive to find the talent needed to fulfill requirements, but even when we do most organizations do not know what steps need to be done or what processes need to be followed. But most importantly, organizations typically do not have the tools to assess, monitor, and respond to actions.

For those in the water industry, there is an underlying responsibility we have not just to the organization but also to the public at large. We must keep our infrastructure safe and secure. Threat actors who can pierce security barriers can provide damage beyond the borders of the organization which can have far reaching effects. We need to be resilient in our efforts and vigilant in our monitoring.

At Maise, we have the staff, technology, and knowledge bases to address your security concerns and threats to your businesses. We would encourage you to contact us so we can assist you or even to provide a free assessment. Whatever you do, please make sure you are taking the steps you need to protect your organization, and in turn, the public. If you have any questions, please contact us.

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# \$eriously Good ROI on \$eptage



*Forward-thinking KWRD continues to evolve to meet the needs of its growing community and increasingly stringent environmental regulations.*



**Mike Holland, Assistant District Manager of KWRD**

## **When investing in new equipment, what would you consider to be a reasonable payback? Five years? Three years?**

At the Kishwaukee Water Reclamation District (KWRD) in Illinois, how about just 14 months? This utility, with its net-zero energy plan and biogas plant, could be described as a blueprint for future treatment plants. But it is also

very much in-the-now, totally committed to being an exemplary environmental steward. KWRD believes in “Clean the Kish,” aiming to clean the Kishwaukee River (known locally as “the Kish”), a 63.4-mile-long stretch of water whose name derives from the Native American Potawatomi word for “River of the Sycamore.” Recovering resources to protect public health at KWRD is a fundamental ongoing aim, and it is a necessity to achieve that goal in the best possible and economically viable way for the 50,000 people it serves.

Kishwaukee’s clean green renewable energy, nutrient-rich biosolids, and eight acres of native prairie (which encourage butterflies and enhance the beauty of the area) all sounds extremely positive – and it is – but what about the slightly less dashing image of... septage?

Far enough out of Greater Chicago, close to agricultural land and homes with septic tanks, KWRD realised that their location was advantageous for septage collection and that there was a gap

in the market, which was confirmed by an approach from a septic hauling firm that was looking for a receiving station. So, in 2012, this enterprising facility in Dekalb, IL, (65 miles from Chicago) began taking in septage, which was dumped into a manhole on site that combined with the main influent flow. Word soon spread, and by offering very competitive rates of \$0.035/gal, septage fees were fast stacking up with the plant taking in 442,000 gallons of septage in the first year alone. As more and more hauliers, from around a 50-mile radius, chose Dekalb as their unloading site, the treatment plant had to deal with volumes that rose to 704,000 gallons in 2013, all the way up to 2.6M gallons in 2016.

“Creating regular revenue towards the overall running of our facility has been extremely useful,” said Mike Holland, Assistant District Manager at KWRD, “but by its very nature, septage presents challenges, so with an increasing amount of debris, our screens would become blinded and needed cleaning



*Until the Lakeside SAP was installed, the KWRD’s screens would regularly become blinded.*



*The Lakeside SAP is a small-footprint, pre-engineered, self-contained, fully automated unit.*



*KWRD is totally committed to being environmental stewards.*



*Septage haulers receive access by the plant's assigned PIN to activate the system.*



*Not content with energy efficiency, KWRD is striving to be energy neutral.*



*By capturing debris from the septage, damage to downstream equipment such as clogging pumps, is prevented.*

manually. This meant more labor and also more man-hours of troubleshooting, because the flows could mess with our controls. We finally reached a point where we needed to screen the septage separately and have more control.”

In 2017, Mike and his colleagues considered a new single screen system, specifically designed for the handling of septage.

### Very Positive Reports

“We looked at some different manufacturers,” Holland said, “including Lakeside Equipment Corporation, [of] who we’d always heard very positive reports. We went to visit two of their plants to see for ourselves, and it was more about what we didn’t hear. None of the operators talked about problems – just that the equipment was very easy to maintain, clearly built to last and didn’t involve much time to manage it. We also sought advice from LAI, Ltd. in Rolling Meadows, a manufacturers’ representative firm serving the water, wastewater, and stormwater markets, from who we had previously bought equipment.”

After careful consideration, KWRD chose Lakeside Equipment Corporation’s Septage Acceptance Plant (SAP), a small-footprint, pre-engineered, self-contained, fully automated unit with a full-penetration rake-head that removes debris and inorganic solids that typically pass through a conventional bar screen. To pre-treat septage, the SAP is anchored by the reliable, heavy-duty Raptor®

Fine Screen. By capturing the debris from the septage, damage to downstream equipment such as clogging pumps/valves, decreasing aeration effectiveness, plus dewatering/filtering equipment and sludge digestion, is prevented.

“We have around 15 septic hauliers that use our facility,” added Holland. “Our intake now exceeds four million gallons per year, but apart from having to clean out the SAP’s rock trap once per week, the Lakeside system takes care of everything – and we also know exactly which hauliers have come in, at what time, and how much they have dumped.”

Installed in 2018, the Lakeside SAP at Dekalb provides security access, load management, and invoicing capabilities. Haulers receive access by the plant’s assigned PIN that activates the system, opens the inlet flow control valve, allowing the hauler to select one of five waste types on a touch screen.

### Payback of Just 14 Months

“Taking in septage has become a significant revenue stream for us, keeping wastewater treatment costs down for our citizen,” Holland said. “Daily, around five to 10 vehicles visit us during our main hours, each depositing about 3500 gallons per time. The access code makes everything easy. Payback of just 14 months far exceeded our expectations. The Lakeside SAP has really been an awesome addition to our facility.”

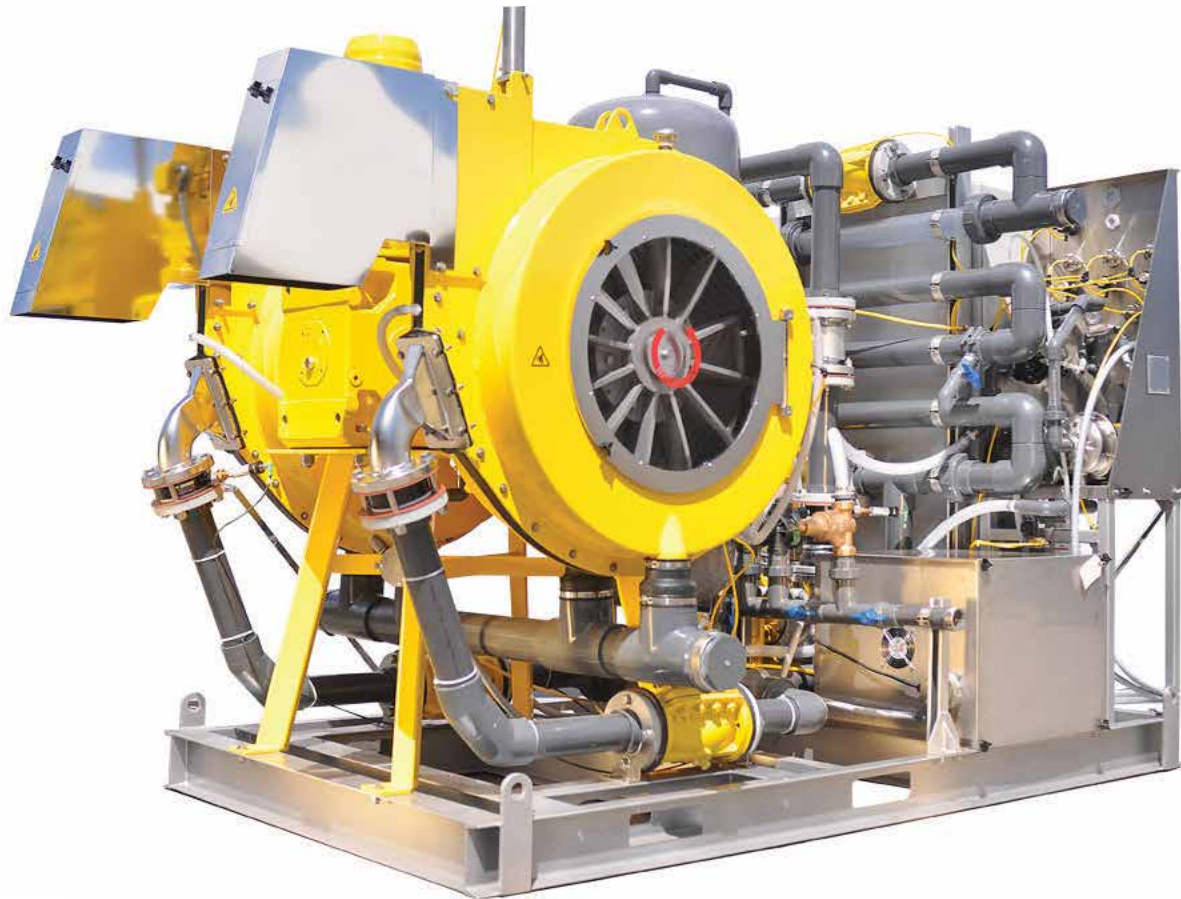


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# Unconscious Bias

**What is it, why should we care and what can we do about it?**

Biases can be **explicit** in that we are aware when we are expressing them, or **implicit**, that operate outside of our day-to-day awareness. **Unconscious Bias is another term for implicit bias.**

Jennifer Eberhardt writes that “Implicit bias is a kind of distorting lens that’s a product of the architecture of our brain and the disparities in our society.”

To have bias is to be human

**We all have preferences, or biases, based on our life experiences** and belief systems.

Humans are hardwired to be on the alert for danger, and just as we tend to feel safe around people we sense are familiar, we also tend to feel wary around those we perceive as different.

We might have bias about someone’s accent, language or clothing choices. We might trust someone quickly because they remind us of an old friend. We might assume they are competent because they are tall, or incompetent due to their weight.

## Why do we have bias?

Our brains create simplicity from chaos. They are constantly processing vast amounts of data, making meaning of different stimuli so that we can take action. The brain’s job is to keep us safe by detecting patterns, avoiding danger and allowing us to thrive in the future. Over time, the brain notices patterns and categorizes these to remember what has kept us safe, and what has caused us pain. These categories become biases.

**“But I’m a scientist, I work with data.”**

No one is immune from bias. Research has shown that what we notice is impacted even when we rationally know stereotypes to be false!

## Here are some common ways our brains create simplicity from chaos:

1. We fill in characteristics from stereotypes, generalities and prior histories.
2. We notice flaws in others more easily than we notice flaws in ourselves.
3. We are drawn to details that confirm our own existing beliefs = confirmation bias.
4. We **think** we know what other people are thinking.

## Why is this important?

1. Our decision making is not as objective as we think it is.
2. We tend to expect people to agree with us and to hold similar sets of assumptions. If they do not, we may miscommunicate.

**“Neither our evolutionary path nor our current culture dooms us to to be held hostage to bias. Change requires a kind of open-minded attention that is well within our reach.”**

Jennifer Eberhardt, PhD

## How can we mitigate against bias?

1. When making decisions about people, choose measurable, consistent criteria and stick to them.
2. Become aware of your own personal biases and acknowledge where you have a preference before making a decision.
3. Talk openly about team biases, ask a group to identify any ‘group think’ vulnerabilities.
4. Consider a ‘bias-busting’ prep meeting before important discussions, to remind the team of known biases and be prepared to pause and reflect.



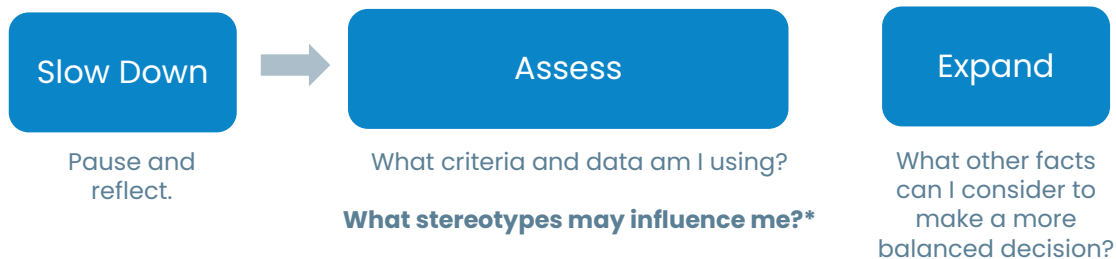
## Common Types of Bias.

Which of these do you recognize, in yourself or others?

Type of Bias	Brief Description
<b>Affinity</b>	Tendency to form an impression based on shared, non-relevant characteristics, e.g., speaks with a familiar accent, takes part in same community activities.
<b>Attribution</b>	Tendency to attribute credit to ourselves for successes and to outside causes for failures. Conversely, to view others as more responsible for their own failings.
<b>Confirmation</b>	Tendency to listen more often to information that confirms our existing beliefs. Through this bias, people tend to favor information that reinforces the things they already think or believe.
<b>False-Consensus</b>	Tendency to overestimate how much others agree with our beliefs, behaviors, values.
<b>Halo/Horns</b>	Impression overly weighted by a single factor (either positive or negative), e.g., 'strong presenter' = top performer.
<b>Diagnosis Bias</b>	Tendency to associate certain qualities with initial perceived value, e.g., height and leadership abilities; warmth and competence, obesity and low competence.
<b>Pattern Recognition</b>	Tendency to sort information based on prior experience and habit; "they've always been a top performer".



## Checking your Biases



\* You can test to see what biases you hold on the Harvard Implicit Association Test website (link below).



### Where can I go to learn more?

*Biased: Uncovering the Hidden Prejudice That Shapes What We See, Think, and Do* by Jennifer L. Eberhardt, PhD

[www.wef.org/dei](http://www.wef.org/dei) for WEF DEI Committee resources

Harvard Implicit Association Test <https://implicit.harvard.edu>

[Hidden Brain Podcast](#) on NPR

[Cognitive Bias Codex](#) on Wikipedia

### Questions: Self-Reflection

1. Which of these commonly occurring biases do you already recognize?
2. What early life experience, cultural values or beliefs might explain your preferences?
3. How could you adjust for this bias, e.g., in day-to-day decision making?
4. What bias or tendency might be an obstacle to you being perceived as an inclusive leader? Who might be impacted?

# Intergenerational Networking & Student and Young Professional WEF Mentoring Program



## Individual Networking

Research shows that even though workers have more ways to connect than ever, a person's network is usually a group of people very similar to them in terms of race, gender, age, etc. Diversifying your network requires conscious attention.

- ❑ **Make an effort** to reach out to people who are not of your generation—if you don't normally make a phone call, try it; if you don't normally send an email or teams message, try it. Have you used platforms like TikTok, Reddit, Slack, etc.? While you don't need to know them all, it's helpful to seek out new information channels.
- ❑ **Reach across WEF sectors** by joining committees doing work you're interested in knowing more about, not only those where you bring expert knowledge. Adopt a beginner mindset as you engage in topics of interest and meet new people.
- ❑ **Consider the relational power dynamic** in networking and work to level it as much as possible. This can be done by recognizing that, no matter your level of seniority, there's always something new to learn. Ask for and respond to feedback.
- ❑ **Ask authentic questions, give authentic answers.** Jokes or sarcastic comments about age differences or life experiences can backfire. They may shut people down or come across as offensive.
- ❑ **What may have been acceptable in the past is now dated**, for example male colleagues referring to female colleagues as "sweetie" or "honey". The speaker may think they're being kind and familiar, while the receiver may experience this as overly familiar, derogatory or exclusive. Be responsive to feedback on how a person wants to be addressed.

(see [How to Shift My Behaviors as a Leader](#) for more on this topic)

**The workforce of the future does not look or operate like the workforce of the past. How do organizations like WEF use this diversity to its advantage in innovation and problem solving?**

**There are currently 4 to 5 generations of people operating in the workforce together using different approaches to work and collaborate. Research shows that diverse companies and organizations are the most innovative and outperform less diverse organizations.**

**Intergenerational networking is key to developing diverse committees and work groups that can balance historic organizational knowledge and diverse perspectives for innovation.**



## Committee Outreach to Enhance Diversity

**Diverse networks make it more accessible for employees to make connections and referrals that result in diverse teams and committees.** In these arenas, diversity of perspective, experience, and knowledge lead to more innovative solutions and dynamic problem solving. Think about where you can get involved to share your expertise and learn from others.

- **WEF InFLOW program** partners with HBCUs and other organizations of underrepresented groups to bring students and technical professionals from these arenas to WEFTEC and support them in getting a strong start in the water sector.
- **Connect with WEF Member Associations** to look for newer members who want to get involved at the international WEF level.
- **Go outside the "usual water stakeholder"**, as outlined in the WEF strategic plan update, to connect with all water community partners—non-profits, community organizations, environmental advocacy groups, and small systems and companies.
- **SYPC Mentorship Program**, see the next page to find out more.



"It is a seasoned professional's legacy to the water sector to mentor the next generation of leaders."

— **Lou Storino, P.E., Mentor**



## SYPC Mentorship Program Advances the WEF Mission, Supports New Professionals

WEF's **Student and Young Professional Community (SYPC)** offers a structured opportunity to expand your network through their mentoring program. The program features pre-scheduled group networking calls as well as 1:1 time for pairs to connect. Past participants highly recommend the program.

SYPC is actively looking for participants, with particular emphasis on recruiting mentors interested in supported the program. Do you have industry experience to share in the following categories?

- Working with project teams i.e. for design and construction, responsibilities & roles of utility/owner, engineer, contractors
- Understanding technical documents and contracts
- Working through difficult manager and leadership relationships
- Asking for what you want at work, i.e technical opportunities, support, leadership opportunities, salary
- How and where to get involved in WEF



"I would recommend this to anyone who is given the opportunity. It's rewarding seeing your protégé succeed, and helping them avoid the pitfalls that you've experienced in your career can help them get to where they want to be."

— **Brian Persing, Plant Superintendent, Mentor**



"I would recommend this to others! It's a great way to connect a young professional to an industry leader which is very helpful in the early stages of one's career."

— **Blaga Delic, P.E., Protégé**



"I was surprised at my ability to be successful in a virtual mentorship format. As a result of being paired with my mentor, I have an example of someone who has successfully built a thriving career while residing in their hometown. I now feel confident in my decision to live here and still have ample career opportunities. I've gained an increased confidence in my decision-making abilities over the course of this program."

— **Cheyenne Harris, P.E., Protégé**

### Mentorship Best Practices

*Whether you network through the WEF program or on your own, here are tips to get you started.*

#### Positive mentoring relationships are categorized by:

- Mutually beneficial time commitment
- Honest, two-way exchange
- Respectful debate on differing views
- Critical assessment of ideas
- A leveling of the power gradient
- Mutual positive regard and openness
- Respect for limits and boundaries
- Commitment to confidentiality

#### Mentors:

- A desire to support others in their development
- Current and relevant industry knowledge or expertise and skills to share
- A willingness to share failures and personal experiences, both "how I did it right" and "how I did it wrong" stories
- A growth mindset, because the best teachers are those who are continually learning
- Skill in developing others: active listening, asking powerful questions, self-reflection

#### Protégés :

- Own the opportunity by identifying your initial development and career goals
- Be willing to discuss short and long-term career goals, obstacles, & successes
- Seek and be open to feedback
- Be willing to push outside your comfort zone to test/apply mentoring lessons to work in real time



"I have had a few protégés over the years and each experience is different but getting to know the next generation of our industry and helping them is a rewarding experience."

— **Brian Persing, Plant Superintendent, Mentor**

# WEF Scholarships Now Accepting Applications

Several Water Environment Foundation (WEF) scholarships are now open for applications. Please see below for a summary of each award and visit the associated websites for more information.

## Canham Graduate Studies Scholarship

The Canham Graduate Studies scholarship aims to build pathways to the water sector. The scholarship provides \$25,000 for a post-baccalaureate student in the water environment field. The scholarship is for education-related expenses. Applications are accepted from post-baccalaureate students in the water environment field.

### Application Requirements and Criteria:

- Applicants must be a member in good standing of WEF.
- Applicants must complete an online application providing a summary of academic and practical experience in the environmental field.

- Applicant must submit official college/ university transcripts.
- Applicant must be enrolled in a graduate program in the water environment field. A letter of acceptance is acceptable for applicants entering their first year within their graduate program.
- Application must include recommendations from three people who can attest to the applicant's academic and/or practical experience. At least one of these persons must be a member of WEF.
- Application must include a detailed statement of degree objectives as related to applicant's career goals

- and intent to work in the water environment field (750 words minimum; 1,000 words maximum).
- Recipients of the scholarship are expected to make a commitment to work in the water environment field for two years following completion of the degree.

Applications are open January 15 to March 31. Online application forms must be completed and submitted along with three letters of reference. Recipient is responsible for taxes due on the award. Learn more at <https://bit.ly/3KI7DcC>.




## WEF Operator Scholarship

The purpose of the WEF Operator Scholarship is to provide funding for individuals seeking water sector operator education, training, or certification to enter the industry or to advance their knowledge, skills, abilities, or license. Awardees may receive up to \$5,000 dollars.

### Application Requirements and Criteria:

- Applicant must be an individual seeking an entry-level operator's license, or an entry or experienced operator seeking professional development in the following areas:
  - o Municipal and industrial treatment
  - o Reuse
  - o Collection and distribution
  - o Stormwater
- Applicant must have completed online application including a brief essay on your experience and career goals.

Applications are open January 15 to March 31.

Awardees must submit cost documentation in their application to receive funds. Applicants who are new to the industry (seeking initial certification or currently have the lowest level of certification in their state) may include WEF membership fees in their documentation costs. Learn more at <https://bit.ly/3SOBwtP>. 

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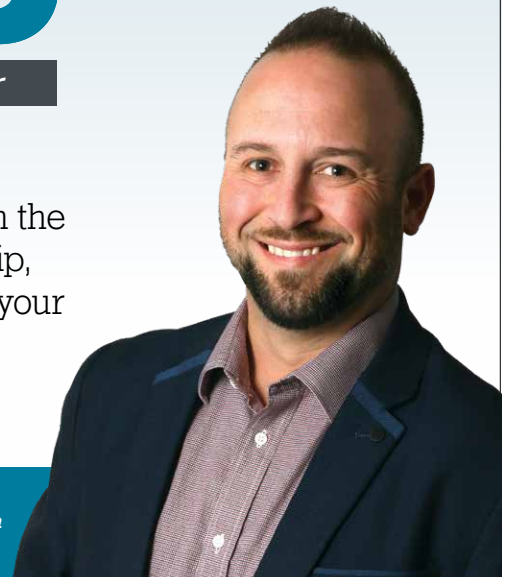
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