water environment association of

Utah

wef Member Association

ANNUAL CONFERENCE

PROGRAM BOOKLET

VIRTUAL CONFERENCE | APRIL 13-15 | 2021

2021 WEAU ANNUAL CONFERENCE SPONSORS

Premier Platinum

AQUA ENGINEERING

BOWEN COLLINS & ASSOCIATES

Brown AND Caldwell

carollo
Engineers...Working Wonders With Water®

isiWEST | 10 plusYEARS

J-U-B

LEWIS YOUNG ROBERTSON & BURNINGHAM, INC.
AN INDEPENDENT MUNICIPAL FINANCIAL ADVISORY AND CONSULTING FIRM

OLYMPUS INSURANCE

Skyline ELECTRIC

Stantec

US ULLIMAN SCHUTTE

WATERWORKS ENGINEERS

water environment association of Utah

wef Member Association

2021 ANNUAL CONFERENCE PROGRAM

CONTENTS

CONTINUING EDUCATION

OPERATORS - CEUs

WEAU will monitor and report attendance for the conference to the state through GoTo Webinar for Operator CEUs. To ensure your attendance is accurately reported, please make certain you are registered and logged in as an individual for each day's tracks. If you choose to watch the sessions as a group at a single computer or other means beyond logging in as a single user, you will be responsible for reporting your CEU hours.

ENGINEERS - PDHs

Engineers are responsible for documenting and tracking their professional development hours individually. The back cover of this booklet has a form that can be filled out for this purpose. Any WEAU officer can sign the form for you.

MISSED SESSIONS

All presentations will be recorded and made available for future viewing by conference registrants for 6 months after the conference. Use the same GoTo Webinar links provided upon registration to access the recorded sessions. CEUs/ PDHs for reviewing these sessions must be documented and reported by the registrant.

CONFERENCE SCHEDULE

TUESDAY APRIL 13, 2021

Time	Event
8:00 AM – 9:00 AM	Technical Sessions
9:15 AM - 10:15 AM	Technical Sessions
10:30 AM - 11:30 AM	Technical Sessions
11:30 AM – 1:00 PM	Lunch Break
1:00 PM - 2:00 PM	Technical Sessions
2:15 PM – 3:15 PM	Technical Sessions
3:30 PM – 4:30 PM	Technical Sessions

WEDNESDAY APRIL 14, 2021

Time	Event
8:00 AM – 9:00 AM	Technical Sessions
9:15 AM - 10:15 AM	Technical Sessions
10:30 AM - 11:30 AM	Technical Sessions
11:45 AM – 1:00 PM	Virtual Networking Session with Paul Jones - Bridgio (sponsored by Young Professionals - see page 6).
1:00 PM - 2:00 PM	Technical Sessions
2:15 PM – 3:15 PM	Technical Sessions
3:30 PM – 4:30 PM	Technical Sessions

THURSDAY APRIL 15, 2021

Time	Event
8:00 AM – 9:00 AM	Technical Sessions
9:15 AM - 10:15 AM	Technical Sessions
10:30 AM - 11:30 AM	Technical Sessions
11:30 AM – 1:00 PM	Lunch Break
1:00 PM - 2:00 PM	WEAU Business Meeting and Kahoots Quiz
2:15 PM – 3:15 PM	Technical Sessions
3:30 PM – 4:30 PM	Technical Sessions

2021 ANNUAL CONFERENCE PRESIDENTS MESSAGE

Welcome to our 2021 Annual WEAU Conference! We are so glad that you have joined us this year for our newly designed, first time ever, WEAU VIRTUAL Conference. (Wow, what an adventure). This last year has been quite the opportunity to stretch and grow for probably most of us in some way or another. As a WEAU Board, we are so grateful for each one of you. You are what makes our association so great. As a Board, we'd like to give a big shout out of thanks to our Annual Conference Committee. Their hard work, dedication, time, and great willingness to adapt to a whole new way of having a conference made this week possible. It has come with some fun challenges, so we hope you are able to dive in and get some good information as we share things virtually this year.

We are grateful for our sponsors who have helped support our association both in the past and in our current times with everything going on in our world. We also need to thank all those who have been willing to step out of the norm, or even out of their comfort zone, in giving a presentation on our virtual Go-To-Webinars this conference. Our main goal is that you all have the opportunity to find something valuable to you from this year's presentations, and hopefully acquire some high-quality CEUs in the process. We also hope you can find some way to connect with each other this conference. We know it's different, but we'd like to encourage you to reach out and talk to someone or send them a chat. Find out how things are in their world, or maybe ask what the water industry looks like for them.

Now, I know that we would normally be down in beautiful sunny St. George soaking up some rays, but this year we are engaging in a whole new way. We would be rekindling friendships and probably teasing each other in good fun, but instead we get to find new and different ways to connect. We will miss our Vendors and the exhibit hall, but we will look forward even more to next year when we can see some of the newest and latest things coming out in our field. We will miss our Operator Challenge and the great camaraderie and competition that it creates for all who attend. This last year, we have all had to hunker down, keep a low profile, and just keep pushing forward. However, we appreciate our teams and every other member suiting up and rising to the challenge every day.

So, sit back, relax, and enjoy this year's unique and informative conference.

Sincerely,

Chris Reilley

WEAU President, 2020-2021

WEAU 2020-2021 OFFICERS

PRESIDENT	**Chris Reilley** *Central Valley Water Reclamation*
PAST PRESIDENT	**Giles E. Demke** *City of Orem*
PRESIDENT ELECT	**Trevor Ray Lindley** *Brown and Caldwell*
VICE PRESIDENT	**Sarah Leavitt Ward** *Utah Division of Water Quality*
SECRETARY	**Chad Burrell** *Snyderville Basin WRD*
TREASURER	**John Richardson** *Brown and Caldwell*
FEDERATION DELEGATE	**Clint Rogers** *Stantec Consulting*
FEDERATION DELEGATE	**Sherry Sheffield** *South Valley Reclamation Facility*
ASSOCIATION DIRECTORS	**Rob Jaterka** *Magna* **Jed Jenkins** *Goble Sampson Associates* **Marianna Sochanska** *Brown and Caldwell* **Gary Vance** *JUB Engineers, Inc.*
PWO REPRESENTATIVE	**Tyler S. Barfuss** *North Davis Sewer*
PWO REPRESENTATIVE ELECT	**Daniel Watts** *Cottonwood Improvement District*

YOUNG PROFESSIONAL & STUDENT COMMITTEE ACTIVITIES

For recent graduates, students, operators and engineers ages 35 and younger, and those who recently joined WEAU.

VIRTUAL NETWORKING ACTIVITY

Are you worried about meeting and connecting with other people at the virtual conference? All conference attendees are invited to this peer group networking event hosted by Paul Jones with Bridgwell. The session will help attendees connect and generate peer-driven discussion. Idea sharing, group problem-solving, and expanded meaningful networking are just some of the things you can expect to experience during this session.

WHEN:	Wednesday, April 14, 2021 11:45 AM - 1:00 PM
WHO:	All WEAU members are invited to participate
WHERE:	Virtual Zoom Meeting: https://zoom.us/j/99555848539
WHAT TO EXPECT:	After a brief introduction, we will divide into smaller groups with a discussion question. These questions are designed to prompt meaningful conversations and natural connections. Paul, the moderator, is great at setting the tone such that we can quickly get to know and learn from one another in an engaging way.
WHY PARTICIPATE (FROM OTHER YOUNG PROFESSIONALS):	"I preferred [the virtual networking] over in-person networking because the discussion was guided. Having a facilitated discussion took the guesswork, fear, and awkwardness out of networking because everyone knew what to expect from the discussion." "I [found] myself wishing the networking session could [have gone] a little longer because we're able to have valuable connections through its unique format."
CONTACT:	Rebecca Yoo - ryoo@brwncald.com

VIRTUAL CONFERENCE

Due to the COVID-19 pandemic and out of an abundance of caution, this year's WEAU Annual Conference is a virtual conference hosted by GoTo Webinar. Each registrant received an email confirmation from president@weau.org with information for completing your registration through GoToWebinar.com. Each track (Track A and Track B) of each day has a separate GoTo Webinar registration link in that email. Please follow those links to register for each track of each day.

Upon completing the GoTo Webinar registration, you will receive an email from GoTo Webinar with the meeting link for each session. Participants can use those links to choose which sessions they want to attend. Participants can switch between links/tracks as necessary.

If you have questions or trouble accessing the GoTo Webinar links, please email Korey Walsh at webmaster@weau.org.

MODERATORS LIST

Tyler Barfuss
tbarfuss@NDSD.org

Chad Burrell
CBurrell@sbwrd.org

Andrew Hobson
ahobson@jub.com

Rob Jaterka
rob@magnawater.com

Steven Meyer
smeyer@bowencollins.com

Megan O'Hare
MOHare@brwncald.com

Brent Packer
bpacker@bowencollins.com

Ben Skousen
bskousen@brwncald.com

Gary Vance
gvance@jub.com

Sarah Ward
sarahward@utah.gov

Brandon Wyatt
bwyatt@bowencollins.com

CONFERENCE PROGRAM

TUESDAY, APRIL 13

TIME	TRACK A	TRACK B
Topic	**Asset Management**	**Nutrient Removal**
8:00 - 9:00	2020 ASCE Utah Infrastructure Report Card Overview	BNR Success at Salem
	Craig Friant - J-U-B Engineers, Inc./American Society of Civil Engineers (ASCE) (Ryan Maw)	*Jason Broome - Forsgren Associates*
9:00-9:15	**BREAK**	
Topic	**Collection Systems**	**Nutrient Removal**
9:15-10:15	Condition Assessments of Collections Systems using Acoustics and Digital Manhole Scanning	Less Treatment Can Be Better Treatment
	Jonathan Borden - RH Borden and Company, LLC	*Ryan Bench - Carollo Engineers (James Dixon (Central Weber Improvement District))*
10:15-10:30	**BREAK**	
Topic	**Collection Systems**	**Nutrient Removal**
10:30 - 11:30	Bringing Light Underground, UV CIPP Lining	Doing More with Less: Biological Nutrient Removal at Silver Creek WRF
	Christopher Larson - C&L Water Solutions, Inc. (BJ Riggins)	*Erin Andersen - Carollo Engineers, Inc. (Craig Ashcroft, Jacob Baer)*
11:30-1:00	**LUNCH BREAK**	
Topic	**Collection Systems**	**Nutrient Removal**
1:00-2:00	Microbial Induced Corrosion in Sanitary Sewer Collection Systems: Causes, Effects, and Solutions	Anaerobic ammonia oxidation - a wonderful innovative tool to manage nitrogen cycle in wastewater treatment plants
	Heather Christensen - Geneva Pipe & Precast	*Soklida Hong - University of Utah (Ramesh Goel)*
2:00-2:15	**BREAK**	
Topic	**Collection Systems**	**Nutrient Removal**
2:15-3:15	Your Crystal Ball "How Cloud-Based SCADA Allows Operators To See The Future" And Avoid Problems	Adaptive Mixing and Better Biological Nutrient Removal
	Mauritz Botha - XiO, Inc.	*Alden Meade - Xylem*
3:15-3:30	**BREAK**	
Topic	**Collection Systems**	**Nutrient Removal**
3:30-4:30	Real Time Decision Support Systems for Intelligent Watershed Management	Construction, Commissioning and Start Up of the World's First Advanced Biological Nutrient Recovery (ABNRTM) Facility at the Village of Roberts, WI
	Alex Puryear - Xylem Inc.	*Jordan Lind - CLEARAS Water Recovery (Autumn Fisher)*

CONFERENCE PROGRAM

WEDNESDAY, APRIL 14

TIME	TRACK A	TRACK B
Topic	**Wastewater Facilities**	**Project Delivery**
8:00 - 9:00	Planning 40 Years of Improvements for Timpanogos SSD	Continuing the Conversation: Engineers and Operations and Maintenance Staff Continue Collaborating during Covid-19
	Trevor Lindley - Brown and Caldwell (Rich Mickelsen)	*Josh Donegan - AECOM (Jamey West)*
9:00-9:15	**BREAK**	
Topic	**Wastewater Facilities**	**Miscellaneous Topics**
9:15-10:15	Primary Clarification Pilot Testing - Could Primary Filters Be In Your Future?	Measuring Community Trends in Covid-19 from Wastewater Influent Samples
	Adam Jones - Brown and Caldwell (Rich Mickelsen)	*Jeff Ostermiller - Utah Division of Water Quality (Nathan LaCross)*
10:15-10:30	**BREAK**	
Topic	**Wastewater Facilities**	**Miscellaneous Topics**
10:30 - 11:30	UV Disinfection 101	Measuring Community Trends in Covid-19 from Wastewater Influent Samples - CONTINUED
	Steven Winfree - Stantec	*Jeff Ostermiller - Utah Division of Water Quality (Nathan LaCross)*
11:45 - 1:00	**Virtual Networking Event by Bridgio (see page 6-7)**	
11:30-1:00	**LUNCH BREAK**	
Topic	**Wastewater Facilities**	**Water Reclamation and Reuse**
1:00-2:00	Upgrading Lagoon Based Treatment Systems to Meet More Stringent Limits for BOD, TSS and Nutrient Removal	South Jordan City's Pursuit of Own Water Supply Leads to Direct Potable Reuse
	Tom Birkeland - Lemna Environmental Technologies, Inc.	*Randy Zollinger - Carollo Engineers*
2:00-2:15	**BREAK**	
Topic	**Wastewater Facilities**	**Industrial Wastewater**
2:15-3:15	Open	Pretreatment & You
		Spencer Parkinson - South Valley Water Reclamation Facility
3:15-3:30	**BREAK**	
Topic	**Wastewater Facilities**	**Wastewater Facilities**
3:30-4:30	Sustainable Solution for Grit Management Solves Plant Maintenance Challenges	Chemically Enhanced Primary Treatment and Jar Testing
	Pat Herrick - Hydro International	*Rebecca Yoo - Brown and Caldwell (Bryan Mansell, Garrett Jensen and Henryk Melcer)*

CONFERENCE PROGRAM

THURSDAY, APRIL 15

TIME	TRACK A	TRACK B
Topic	**Water Quality**	**Residuals and Biosolids**
8:00 - 9:00	An Innovative Nutrient Management Program for Utah Lake	Where does your digestion process stand? - A Virtual Walk Through the Life Cycle of Anaerobic Digestion
	Jeff DenBleyker - Jacobs Engineering Group Inc. (Rich Mickelsen, General Manager, Timpanogos Special Services District)	*Tom Chapman - Brown and Caldwell*
9:00-9:15	**BREAK**	
Topic	**Water Quality**	**Residuals and Biosolids**
9:15-10:15	An update on the Utah Lake Water Quality Study (ULWQS)	Post Aerobic Digestion A Simple But Comprehensive Biosolids Management Solution
	Mitch Hogsett - Forsgren Associates, Inc. (Theron Miller)	*Bryen Woo - Ovivo USA LLC*
10:15-10:30	**BREAK**	
Topic	**Water Quality**	**Residuals and Biosolids**
10:30 - 11:30	N-fixation contributes to N loadings of Utah Lake	Use It Or Lose It? Biosolids Management Over The Long Haul
	Hanyan Li - The University of Utah (Ramesh Goel, Theron Miller)	*John Richardson - Brown and Caldwell (Bill Fasth, Rob Beggs)*
11:30-1:00	**LUNCH BREAK**	
Topic	**WEAU**	
1:00-2:00	**WEAU BUSINESS MEETING AND KAHOOT QUIZ (WITH PRIZES)**	Open
2:00-2:15	**BREAK**	
Topic	**Miscellaneous Topics**	**Residuals and Biosolids**
2:15-3:15	Risk Management and Insurance Considerations for Major Capital Projects	Optimizing Polymer Mixing and Activation: Following the Science
	Brian Child Justin Zollinger - Olympus / CVWRF (Justin Zollinger)	*Jeff Rhodes - UGSI Solutions*
3:15-3:30	**BREAK**	
Topic	**Safety and Security**	**Industrial Wastewater**
3:30-4:30	Risk Mitigation in Water & Wastewater	Bench Scale Treatability of the Ferrous Chloride Technology
	Skyler Rember - Cedar City Corp.	*Sarah Guzman - Cache Environmental Laboratories, P.C. (Adam Isaac, Brenden Bingham)*

PRESENTERS

Erin Andersen	Carollo Engineers - eandersen@carollo.com
Ryan Bench	Carollo Engineers - rbench@carollo.com
Tom Birkeland	Lemna Environmental Technologies- tbirkeland@lemna.com
Jonathan Borden	RH Borden and Company, LLC - jon.borden@rhborden.com
Jason Broome	Forsgren Associates - jbroome@forsgren.com
Tom Chapman	Brown and Caldwell - tchapman@brwncald.com
Brian Child	Olympus/CVWRF - brianc@olyins.com
Heather Christensen	Geneva Pipe and Precast - hchristensen@genevapipe.com
Jeff DenBleyker	Jacobs Engineering Group Inc. - jeff.denbleyker@jacobs.com
Josh Donegan	AECOM - josh.donegan@aecom.com
Craig Friant	JUB Engineers/ASCE - cjf@jub.com
Sarah Guzman	Cache Environmental Laboratories - sarah@celcertifications.com
Pat Herrick	Hydro International - pherrick@hydro-int.com
Mitch Hogsett	Forsgren Associates - mhogsett@forsgren.com
Soklida Hong	University of Utah - soklida.hong@utah.edu
Adam Jones	Brown and Caldwell - ajones1@brwncald.com
Christopher Larson	C&L Water Solutions, Inc. - clarson@clwsi.com
Hanyan Li	University of Utah - u1072564@utah.edu
Jordan Lind	CLEARAS Water Recovery - jlind@clearaswater.com
Trevor Lindley	Brown and Caldwell - tlindley@brwncald.com
Mauritz Botha	XiO, Inc. - mauritzbotha@xiowater.com
Alden Meade	Xylem - alden.meade@xyleminc.com
Jeff Ostermiller	Utah Division of Water Quality - jostermiller@utah.gov
Spencer Parkinson	South Valley Water Reclamation - sparkinson@svwater.com
Alex Puryear	Xylem - alexander.puryear@xyleminc.com
Skyler Rember	Cedar City Corp. - cedarcitycollections@gmail.com
Jeff Rhodes	UGSI Solutions - jrhodes@ugsicorp.com
John Richardson	Brown and Caldwell - jrichardson@brwncald.com
Steven Winfree	Stantec - steven.winfree@stantec.com
Bryen Woo	Ovivo USA LLC - bryen.woo@ovivowater.com
Rebecca Yoo	Brown and Caldwell - ryoo@brwncald.com
Randy Zollinger	Carollo Engineers - rzollinger@carollo.com

SESSION ABSTRACTS

Erin Andersen

Doing More with Less: Biological Nutrient Removal at Silver Creek WRF

The Silver Creek Water Reclamation Facility Expansion has been operational since April of 2019. Following an optimization period of only two months, the facility has consistently achieved nutrient removal efficiencies of 90-95%, resulting in average effluent concentrations of 0.13 mg/L total phosphorus and 3.71 mg/L total nitrogen. Even more impressive, Silver Creek has yet to use a drop of chemical to assist. In this presentation, we will discuss the facility design, start-up and process optimization, and the characteristics of Silver Creek that contribute to its overall biological treatment success.

Ryan Bench

Less Treatment Can Be Better Treatment

Sometimes, using less treatment can help provide better results in plant effluent water quality. With primary clarifiers nearing capacity and a looming plant expansion, Central Weber Sewer Improvement District (CWSID) implemented a novel idea to partially bypass the existing primary clarifiers and run screened influent directly to their bioreactors. By utilizing influent carbon rather than settling it in their clarifiers, the plant has seen a significant performance increase in biological phosphorus removal, while reducing the need for an additional primary clarifier. But the bypass isn't providing free lunch. The relocation of the carbon, though benefiting nutrient removal, is affecting other downstream processes and increasing O&M costs. This presentation will discuss the tradeoffs between carbon allocation and nutrient removal and how wastewater treatment plants can optimize for their future plans.

Tom Birkeland

Upgrading Lagoon Based Treatment Systems to Meet More Stringent Limits for BOD, TSS and Nutrient Removal

Wastewater treatment process design modeling software, which models biological, chemical, and physical treatment processes, can be used to optimize the design, performance and reliability of lagoon based treatment systems. Lemna Environmental Technologies (LET) employs a dynamic wastewater treatment process simulation model, to analyze performance of existing facilities and the expected performance of proposed facilities. The modelling software is widely used in the wastewater community to investigate the impact of various changes in loadings and temperatures and allows LET to thoroughly verify process design and performance especially with regards to BOD, TSS and ammonia removal. Using historical DMR data from an installation base of over 300 facilities, LET created a unique software model of its LemTec Biological Treatment Process, which utilizes a combination of aerated and settling lagoon cells for biochemical oxygen demand (BOD) and total suspended solids (TSS) removal, and the Lemna Polishing Reactor (LPR) for nitrification. By calibrating the model through the analysis of historical operating data, the model can be used as an accurate predictor of process performance. The model may be manipulated to reflect the size, configuration, loading, aeration and effluent requirements for current or future facilities and is especially useful in predicting and troubleshooting nutrient removal.

SESSION ABSTRACTS

Jonathan Borden

Condition Assessments of Collections Systems using Acoustics and Digital Manhole Scanning

The SL-RAT is a new tool for collection system maintenance. It uses acoustics to see which pipes have blockages and where cleaning is needed. Hundreds of municipalities are now using the SL-RAT to transition to a Condition-Based Collection System Management using this data. This approach has been proven to be more effective than the traditional approach of cleaning all pipes on a 2-5 year rotation and it also saves a significant amount of cost and resources since it prevents cleaning pipes that are already clean. RH Borden and Company is working to help all cities and districts become aware of this technology and incorporate it so they can also save costs and improve outcomes for their city or district.

Mauritz Botha

Your Crystal Ball "How Cloud-Based SCADA Allows Operators To See The Future" And Avoid Problems

Cloud-based SCADA systems allow operators to monitor conditions, receive alarms, control equipment, and view data and trends in order to make informed decisions. In this presentation, we will examine case studies from two agencies that have used cloud-based SCADA to improve their operations and lower the risks of overflows. The cloud-based system allowed them to monitor wet well levels, pump statuses, and AC power remotely from their mobile phones and tablets. A sophisticated user platform enabled operators to schedule predictive maintenance in advance of equipment failure. Gaining insight into pump run times before, during, and after rain events enabled District staff to visualize the impacts of inflow and infiltration on their system.

Jason Broome

BNR Success at Salem

To handle the incoming population boom and meet the new total phosphorus limits, Salem City abandoned their lagoons and began operation of a new biological nutrient removal facility in February 2020. It has been an unequaled success. The oxidation ditch met permits on day one of the discharge, and continues to have outstanding performance with effluent of 5 mg/L BOD, 4 mg/L, and 0.6 mg/L total phosphorus with no chemical addition. This presentation will discuss design considerations, start-up challenges, and lessons learned during the first year of operation.

Tom Chapman

Where Does your Digestion Process Stand? - A Virtual Walk Through the Life Cycle of Anaerobic Digestion

The lifecycle of solids stabilization processes at wastewater treatment plants evolve through over time to meet different organizational goals and permit requirements. A facility may initially look to reduce the volume of solids for disposal. Eventually capacity expansion is required, often providing financial justification for energy recovery and co-digestion of new waste streams. End use management evolves from disposal to beneficial reuse of Class B or Class A biosolids to reduce program risk and

cost. This presentation will share the deliberate and thoughtful progression of solids treatment facility advancements, such as: the best point to consider anaerobic digestion, strategies to implement cost effective energy recovery, and drivers to advance from unclassified sludge to Class B and Class A biosolids through technologies like thermophilic digestion and thermal hydrolysis. Example projects will be discussed. Come learn about some of the most innovative and current thinking in the world of anaerobic digestion.

Brian Child

Risk Management and Insurance Considerations for Major Capital Projects

Many treatment facilities and collection systems are in the process of completing significant capital projects. This includes constructing new facilities and the renovation and repurposing of existing facilities. These projects can bring significant risks to their owners, with subsequent damage to facilities and the legal liabilities stemming from third-party liability claims. In this presentation, we will review some of the best practices that can be implemented to mitigate the risks involved with these projects and how to implement strategies to streamline the cost and scope of builder's risk insurance programs, enhancing the efficiency and effectiveness of your risk management programs.

Heather Christensen

Microbial Induced Corrosion in Sanitary Sewer Collection Systems: Causes, Effects, and Solutions

Microbial induced corrosion (MIC) in concrete sanitary sewer collection piping systems is a serious problem resulting in millions of dollars spent on maintenance and repair worldwide. This presentation will cover the mechanisms of concrete deterioration in sewer environments, provide a general assessment of the impact of MIC on infrastructure, and evaluate existing preventative measures and remedies.

Jeff DenBleyker

An Innovative Nutrient Management Program for Utah Lake

Timpanogos Special Services District has developed an innovative approach to nutrient management that focuses upon three pillars to accelerate development of more holistic and long-term solutions for reducing the intensity, duration, and frequency of HABs in Utah Lake: 1) limiting watershed nutrient inputs, 2) understanding and adapting the lake ecosystem structure, and 3) disrupting in-lake nutrient cycling. This presentation will provide an overview of innovative approaches TSSD is currently developing to provide long-term nutrient management and HAB control for Utah Lake. TSSD completed a pilot study of geochemical augmentation of treatment wetlands to drive phosphorus loading to Utah Lake down, at low cost, while enhancing habitat and community opportunities along the lakeshore. TSSD is starting a two year in-lake pilot study to evaluate the impacts from and benefits of controlling carp populations in Utah Lake and using geochemical augmentation within the lake to disrupt in-lake nutrient cycling.

SESSION ABSTRACTS

Josh Donegan

Continuing the Conversation: Engineers and Operations and Maintenance Staff Continue Collaborating during Covid-19

When Covid-19 took hold in North America, public gatherings in the workplace changed dramatically. However, the need for operator engagement during the design of a new water reclamation facility did not change. Having still an immense need to convey evolving design information to the future operators of a facility; reimagining ways to engage with a staff that typically prefers in-person information with quick access to questions and answers is critical. In response to this effort, AECOM utilized their innovative technologies including BIM360 and panoramic views of the newly designed WRF to provide realistic 3D imagery to capture the imagination of the operators. By fostering open communication and direct feedback between the O&M staff and the design team through the operator engagement slides, it is highly likely that the completed design will have high user satisfaction and increased safety over the silo approach to design and construction.

Craig Friant

2020 ASCE Utah Infrastructure Report Card Overview

Utah is home to one of the highest rates of population growth in the country, and the quality of our infrastructure is essential to continued sustainable growth. Strong infrastructure benefits the economy by enabling goods to travel over our bridges and highways, allowing employees to get to work safely, and keeping businesses operational through extreme weather or seismic events. As stewards of our infrastructure, civil engineers are responsible for the planning, design, construction, operation, and maintenance of our vital public works. With that responsibility comes the obligation to periodically assess the state of our infrastructure, report on its condition and performance, and advise on the steps necessary to improve it. The 2020 ASCE Infrastructure Report Card evaluated aviation, bridges, canals, dams, drinking water infrastructure, hazardous waste, levees, solid waste, stormwater infrastructure, roads, transit, and wastewater infrastructure. This presentation will discuss the 2020 grades and recommendations to improve Utah's infrastructure.

Sarah Guzman

Bench Scale Treatability of the Ferrous Chloride Technology

The growing chemical complexity of materials used in aircraft design, maintenance operations, and increased use of low volatile organic compound industrial cleaners have expanded the presence and concentration of chelating substances associated with wastes and wastewaters. Chelating substances form highly stable metal-organic complexes that inhibit the effectiveness of metal hydroxide precipitation process, a result that raises the risk of regulatory non-compliance for industrial waste treatment plants. The ferrous chloride technology relies on the systematic control of the pH and oxidation-reduction potential to destabilize regulated heavy metals contained in the presence of known chelating substances. A bench scale study was performed to evaluate the ability of the ferrous chloride treatment technology to effectively remove specific regulated heavy metals in the presence of known and suspected chelating substances. Effective ferrous chloride technology treatment provides strong evidence that the solution may be a candidate for future disposal through the industrial waste collection system.

SESSION ABSTRACTS

Pat Herrick

Sustainable Solution for Grit Management Solves Plant Maintenance Challenges

The City of Chandler, AZ currently operates three wastewater treatment plants; the Ocotillo WRF, Airport WRF and Lone Butte WRF. The Airport WRF was built in 1998 as a 5 mgd facility and has been expanded three times to a current capacity of 27 mgd. While expanded multiple times, grit removal remained a key process which was omitted until the plant reached the current 27 mgd capacity. Throughout the years of operating with no grit removal system, plant staff dealt with grit accumulating in many of the low velocity areas throughout the plant. The need for a highly efficient system with a small footprint lead the City to implement a sustainable grit removal system proven to capture fine and slow settling grit. By characterizing influent grit distribution, a target particle size was selected and then verified by an independent third party to achieve the desired removal efficiency.

Mitch Hogsett

An Update on the Utah Lake Water Quality Study (ULWQS)

As Utah County continues to grow in population, anthropogenic nutrient loads associated with wastewater and urban stormwater will continue increase. The Utah Lake Water Quality Study (ULWQS) was initiated to study the large shallow lake with the goal of recommending numeric nutrient criteria that will be protective of the lake's designated uses for generations to come. This presentation will provide a review of the ULWQS goals and an update on the current science and Utah Lake research.

Soklida Hong

Anaerobic Ammonia Oxidation - A Wonderful Innovative Tool to Manage Nitrogen Cycle in Wastewater Treatment Plants

Anaerobic ammonium oxidation (anammox) is a biological process of oxidizing ammonium by nitrite to nitrogen gas under an anoxic condition. The significance of the anammox process in wastewater treatment is promising. Nitrogenous species must be removed from wastewater to avoid eutrophication in the environment. However, the conventional nitrification-denitrification process is inefficient, energy-intensive, and requires the addition of organic carbon to remove nitrogen from sewage wastewater. Anammox has emerged as the alternative technology with efficient removal of ammonium, less energy consumption as aeration is not required, and without the need for organic carbon. Since its discovery, anammox has been widely applied and designed mainly to treat high-strength ammonium sidestream wastewaters. Central Valley Water Reclamation Facility is also considering adopting the anammox process to its workflow. Currently, research efforts have been shifted to mainstream applications of anammox. This presentation will talk about the latest developments and lab-scale studies about anammox.

SESSION ABSTRACTS

Adam Jones

Primary Clarification Pilot Testing - Could Primary Filters Be In Your Future?

As part of a 40 Year Master Plan, the Timpanogos Special Service District is investigating alternatives to add primary clarification at their Water Reclamation Facility (WRF) located in American Fork Utah. The WRF currently treats 20 mgd of municipal wastewater with most of the current facilities designed for 30 mgd of flow. The site is somewhat constrained by Utah Lake, wetlands, and high capacity overhead transmission lines. Recognizing a constrained site, TSSD conducted an 10 week pilot investigation of primary filtration technology. The technology is fundamentally a drum screen, inserted after the headworks, that separates primary solids from the screened wastewater. The potential advantage is reduced footprint compared to conventional gravity settling systems. This presentation will highlight the system, the results from the pilot, and discuss possible site space planning advantages.

Christopher Larson

Bringing Light Underground, UV CIPP Lining

Since the 60's Cured in Place Pipe has been a mainstay technology for rehabilitation of underground sewer and storm sewer networks. Since that time, the technology has evolved using different materials and curing methods. This prentation covers the advancements in CIPP technology with a focus on UV cured CIPP lining products. The technology's advantages, disadvantages, and why this method may be a great tool in any municipal tool box will be presented and discussed.

Hanyan Li

N-fixation Contributes to N Loadings of Utah Lake

During the last few decades, harmful cyanobacterial blooms have become a prevalent problem in many lake ecosystems. Cyanobacteria, or blue green algae is a type of phytoplankton that can release harmful products-cyanotoxin in the lake. Nitrogen (N) and phosphorus (P) are two most important nutrients of concern and often found limiting in summer heavy algal bloom conditions. To overcome the nutrient-limiting conditions, cyanobacteria have developed nitrogen fixation capabilities to fix nitrogen from atmosphere. For example, Aphanizomenon and Dolichopermum are two genera of filamentous cyanobacteria detected in Utah Lake that potentially contains diazotrophic cells for N fixation. To test the hypothesis, acetylene reduction assay was conducted in-situ during the bloom and nutrient-limiting period. Furthermore, the activation of N-fixation activity was tested by quantification of N-fixation genes (nif coding) and gene expression using qPCR and RT-qPCR molecular techniques. The results demonstrated the activation of N fixation during the bloom of some filamentous cyanobacteria. The N-fixation rates were estimated to be 0-0.84 nmol N/L/hr in-situ and 0.61-2.56 nmol N/L/hr in the lab with sufficient light. The nif gene quantification and gene expressions were as high as 10^5 copy/mL of lake water..

SESSION ABSTRACTS

Jordan Lind

Construction, Commissioning and Start Up of the World's First Advanced Biological Nutrient Recovery (ABNRTM) Facility at the Village of Roberts, WI

After piloting and research associated with process optimization and facility modifications to meet future low-level phosphorus permit requirements (0.04 mg/L total phosphorus), the Village of Roberts selected CLEARAS ABNR as their solution for ultra-low phosphorus requirements. The Village was able to maximize existing treatment infrastructure, optimize upstream plant operations to reduce costs and genereate a valuable plant-based biomaterial for sale into diversified markets which includes plastics, foams, inks, and soil amendment. With construction concluding and their compliance date looming, this presentation will provide a glimpse into construcion lessons learned, the commissioning and start-up process and ultimately the performance in meeting a very strict phosphorus discharge limit.

Trevor Lindley

Planning 40 Years of Improvements for Timpanogos SSD

The Timpanogos Special Service District (TSSD) owns and operates a 30 mgd Water Reclamation Facility (WRF) which currently serves over 250,000 people in northern Utah County. TSSD is facing significant population growth, aging facilities, loss of on-site composting, and increased scrutiny related to Utah Lake water quality. TSSD needed a masterplan that addressed these challenges and charted a course for the next 40 years. This presentation will share methods, findings, and recommendations related to the master plan. Stakeholder outreach, use of a Technical Advisory Committee, operator involvement, and solids and liquid train technical alternatives will be discussed.

Alden Meade

Adaptive Mixing and Better Biological Nutrient Removal

With the increased needed for biological nutrient removal (BNR) at wastewater treatment facilities, the needed for slow mixing has increased. In addition to needing mixers, operators are discovering that treatment results can be optimized by controlling the timing and speed at which they mix. The introduction of adaptive mixers has made this control not only possible but also programmable. This presentation will review the processes involved with biological nitrogen and phosphorus removal in wastewater. The role and needed for mixers will be reviewed with regard to each processes. The concept of adaptive mixing will then be introduced along with suggestions on what parameters to monitor within the treatment processes to make mixer speed automation possible. Attendees of this presentation will walk away with a better understanding BNR and the role that mixing pays in its effectiveness.

SESSION ABSTRACTS

Jeff Ostermiller

Measuring Community Trends in Covid-19 from Wastewater Influent Samples

Beginning in March of 2020, scientists from state agencies [Utah Division of Water Quality (DWQ), Utah Department of Health (DOH)] and several universities (University of Utah, Utah State University, Brigham Young University and Dixie State University) began regular measurement of SARS-CoV-2 (the virus that causes COVID-19) RNA concentrations from wastewater influent samples collected at wastewater treatment plants throughout Utah. This information provides a pooled indicator of the status and trends of COVID-19 infections in communities served by each treatment plant. Project results continue to be shared with health officials and the public, including through an interactive public dashboard (wastewatervirus.utah.gov), to better inform pandemic response efforts. In this webinar, we will discuss interesting relationships that we have found between RNA concentrations in wastewater influent samples and community infection rates. We will also discuss the advantages and disadvantages of using wastewater epidemiology data to better understand public health patterns and trends.

Spencer Parkinson

Pretreatment & You

Do you wonder why is it important to have a Pretreatment Department? Or maybe you wonder why Pretreatment has the authority to create and enforce regulations. Or possibly you woder exactly what the Pretreatment Department does. Come and learn about the necessity for Pretreatment and the benefits a POTW can gain from instituting a Pretreatment program within their service area. This presentation will touch on the many regulations required to be followed by Pretreatment, what businesses can be overseen, and the types of issues that can be avoided by instituting a pretreamtnet program.

Alex Puryear

Real Time Decision Support Systems for Intelligent Watershed Management

Giant leaps forward in computing power, combined with advances and cost reductions in sensor and telemetry technologies, have made it possible to go far beyond the status quo and break into a new echelon of opportunities. We can now run high resolution models in real time, with real world precipitation data, while correcting critical downstream model nodes with observed sensor data. The outcome is perpetually calibrated digital copies of the urban watershed designed for operators that provides for far more effective real time operational decision making and control. Attendees of this presentation will better understand what a Real-Time Decision Support System (RT-DSS) is, and how they are helping utilities better manager their system. This presentation will discuss the development and implementation of several RT-DSS for utilities across the country.

Skyler Rember

Risk Mitigation in Water & Wastewater

Exploring Water and Wastewater risk management. The failures of the mind when it comes to the complex and uncertain. How

to avoid making the most common mistakes when it comes to making decisions with an uncertain future. Opening with Solon's Warning, we'll learn of `Black Swan` risks and how this risk has plagued humanity farther in history than the ancient Egyptians. We'll discuss tricks to help detect these risks across many fields, from Municipalities, Water and Wastewater, to financial markets and from medicine to nuclear energy. Learning about risk as a fragility triad will allow us to build barriers to risks in order to minimize their sting. Nonlinearity, Linda and Earthquakes, Airports and Traffic Jams, we'll have an open discussion of common misconceptions, especially in municipalities, about risk. We'll finish off with risk fat-tails and `blowing up`, and learn how to recognize and avoid major misconceptions of proper risk management. Lastly we'll see how Solon was right all along.

Jeff Rhodes

Optimizing Polymer Mixing and Activation: Following the Science

Despite the wide-spread use of polymers in water and wastewater treatment and their associated high recurring expense, understanding exactly how to optimize polymer use in water and wastewater treatment is not well understood. With many equipment options available to operators, it makes sense to start with the basics of polymer chemistry and then apply those principles to polymer activation equipment options. This discussion will review the basics of polymer chemistry, goals of activation, the development of polymer mixing equipment and equipment configuration basics. Factors such as charge site exposure, polymer hydration, application of mixing energy and the effects of dilution water will be detailed as they influence proper polymer activation. Additionally, the impact of water quality attributes such as disinfectant residual levels and hardness on optimal polymer hydration are explored. Given the industry trend of using reclaimed water for polymer mixing, it is crucial to understand the effects of residual chlorine, turbidity, and various dissolved ions. Finally, the benefits of utilizing two-stage mixing - very high initial mixing energy followed by low and uniform mixing energy - are demonstrated by theoretical consideration and practical test data. Emulsion polymer systems with sufficient residence time have proven to provide a more efficient polymer solution. Lastly, both mechanical and hydraulic polymer activation systems will be analyzed to assess their efficiency and adherence to the principles of polymer activation previously discussed. Included in this discussion are equipment features and the latest improvements that help ensure efficiency and reliability for utilities and treatment plant operators.

John Richardson

Use It Or Lose It? Biosolids Management Over The Long Haul

Municipal wastewater treatment facilities along the Wasatch Front face growing challenges with respect to managing biosolids that include significant growth, residential encroachment, odor complaints, increasing operating costs and potential regulation of emerging contaminants such as per and polyfluoroalkyl substances (PFAS). A group of wastewater entities combined resources and completed a study that considered multiple biosolids management alternatives that included offsite composting, offsite land application, offsite monofill, and incineration. An overview of the unique

challenges faced by each entity will be provided as well as industry experience with each alternative as well as an update on regulation of PFAS and potential impacts to biosolids.

Steven Winfree

UV Disinfection 101

Over the past few decades, the use of Ultraviolet (UV) disinfection has increased over traditional chlorination processes. UV disinfection offers not only a more efficient disinfection method with capacity to inactivate Cryptosporidium and Giardia, but also results in a smaller footprint without the issues related to chemical handling of chlorine. UV technology has evolved over the years overcoming concerns with high operation costs and difficult maintenance. Modern UV systems are significantly more efficient and easy to maintain and operate than the early systems. This presentation will discuss basic concepts of UV disinfection highlighting principles of UV disinfection, UV technologies, and basic operation and control procedures.

Bryen Woo

Post Aerobic Digestion A Simple But Comprehensive Biosolids Management Solution

Though anaerobic digestion provides an energy efficient means of stabilizing solids while also producing a renewable fuel in the form of biogas, it presents several issues of growing concern. Some of those issues include the production of struvite, unpleasant odors, and sidestreams high in total nitrogen and phosphorus. Further, significant amount of biosolids still have to be removed from the sites. Recently a new approach has been used to try and mitigate those issues; placing an aerobic digestion process volume after the anaerobic digestion system. Commonly known as Post Aerobic Digestion (commercially promoted as DigestivorePAD), this process has shown promising results for controlling nutrients, increasing volatile solids destruction, and eliminating problematic struvite formation. This paper will discuss the origins of post-aerobic digestion, the decay mechanisms that are taking place within the post-aerobic process volume, design criteria, equipment selection, process control mechanisms, projected performances and results from full scale installations.

SESSION ABSTRACTS

Rebecca Yoo

Chemically Enhanced Primary Treatment and Jar Testing

Jar testing is commonly used to select optimal coagulants and flocculants for primary treatment. The purpose of this presentation is to discuss the purpose, methods, and applications of jar testing. The presentation will further include nuanced procedure details that are often overlooked in literature, as well as an overview of key water quality parameters and their significance in applying to the primary treatment process. This presentation will further discuss an example of implementing the results of a jar test for Chemically Enhanced Primary Treatment (CEPT) at CVWRF and implementation challenges at existing facilities. Participants should walk away with an understanding of key concepts and practical tips for implementing a jar test.

Randy Zollinger

South Jordan City's Pursuit of Own Water Supply Leads to Direct Potable Reuse

The City of South Jordan desires to develop its own water supply but options are limited due to poor underlying aquifer water quality conditions. As one water supply option, the City is evalutaing reusing final effluent from the Jordan Basin Water Reclamation Facility (JBWRF, the largest MBR facility in Utah) and is executing a demonstration project to confirm this water can be properly treated and reclaimed for drinking water purposes. This project, the Pure SOJO Direct Potable Reuse (DPR) Demonstration Facility, will house carbon-based advanced treatment (CBAT) pilot equipment to demonstrate JBWRF final effluent can safely be reused as drinking water without using a reverse osmosis unit process and avoiding its accompanying brine waste stream. This presentation will discuss Pure SOJO DPR Demonstration Facility goals, status, unit treatment processes and on-going collaboration with the South Valley Sewer District and state regulators. This effort is an important step forward in addressing public perceptions regarding wastewater reclamation and shaping water resource managmenet in Utah.

WEAU HISTORIC AWARDS

Outstanding Water Reclamation Facility

	OVER 5MGD	UNDER 5MGD
2009	Central Valley WRF	Ceder City
2010	North Davis SID	SBWRD East Canyon
2011	North Davis SID	Blue Bunny
2012	North Davis SID	East Canyon
2013	Central Valley WRF	Tooele
2014	Orem WRF	North Fork SSD
2015	Orem WRF	Cedar City
2016	Central Valley WRF	East Canyon
2017	South Valley WRF	-
2018	Provo City	Cedar City
2019	Jordan Basin WRF	SBWRD East Canyon

Outstanding Collection System

	OVER 5MGD	UNDER 5MGD
2009	Cottonwood Imp	-
2010	Central Davis Sewer	Providence City
2011	South Davis Sewer	Richfield City
2012	Snyderville Basin WRD	Taylorsville-Bennion
2013	-	Midvalley Improvement
2014	Cottonwood	-
2015	North Davis SID	-
2016	Cottonwood	-
2017	Snyderville Basin WRF	-
2018	North Davis SID	Magna Water District
2019	Orem City	Magna Water District

Outstanding WasteWater Operator >5MGD

	FACILITY	RECIPIENT
2009	Central Valley WRF	Darin Morris
2010	Central Weber SID	Brett Olson
2011	North Davis SD	Bryce Southworth
2012	North Davis SD	Gordon Call
2013	Jordan Basin	Weston Youd
2014	Orem WRF	Lawrence Burton
2015	Central Valley WRF	Michael Earl
2016	South Valley WRF	Weston Gardner
2017	Central Valley WRF	Mike Brown
2018	Central Davis SD	Jace Woodrow
2019	Jordan Basin WRF	Joel Thompson

WEAU HISTORIC AWARDS

Outstanding Wastewater Operator <5MGD

	FACILITY/ORG	RECIPIENT
2009	Snyderville Basin	David Smilanich
2010	Snyderville Basin	Cody Snyder
2011	North Fork	David Boschard
2011	North Davis SID	Snyderville East Canyon
2012	Ash Creek	Kim Spendlove
2013	Dugway Proving Grounds	Robert Tabor
2014	SVWRF	Roger Wiker
2015	SBWRF	Dustin Walton
2016	Magna	Tony Peterson
2017	South Davis SID	Tim Munden
2018	Cedar City Ash Creek	Jeff Lennert Randy Stevens
2019	SBWRF	Jordan Probst

Outstanding Young Professional

	FACILITY	RECIPIENT
2009	CH2M HILL	Tania Datta
2010	DWQ	Jennifer Robinson
2011	South Davis	Matthew Myers
2012	Carollo Engineers	Tyler Bird
2013	Central Valley Water	Becky Tanner
2014	Jordan Basin	Sarah Hopp
2016	Brown and Caldwell	Marianka Sochanska
2017	Carollo Engineers	Andrew Hobson
2018	Carollo Engineers	James Dixon
2019	Carollo Engineers	Ryan Bench

Outstanding Supervisor Award

	FACILITY	RECIPIENT
2009	Snyderville Basin	Roger Robinson
2010	Cedar City	Darrell Olmstead
2011	Cottonwood Imp Dist Central Valley WRF	Lonn Rasmussen Sharon Burton
2012	South Valley WRF	Lee Rawlings
2013	Provo City	Matthew Kesler
2014	Midvalley, ID	Marc Jones
2015	South Valley WRF	Randy Wyness
2016	South Valley WRF	Roger Wicker
2017	Snyderville Basin WRF Central Valley WRF	Scott McPhie Jaren O'Brien
2018	Cottonwood Imp Dist Central Weber SID	Steve Desmarais Kevin Hall
2019	Orem City	Ryan Johnson

WEAU HISTORIC AWARDS

Outstanding Safety Program

2009 South Valley WRF

2010 Cottonwood Improvement District

2011 North Davis SID

2012 Orem WRF

2013 North Davis SID

2014 Central Valley

2015 Central Valley

2016 Cottonwood Improvement District

2017 Snyderville Basin WRF

2018 North Davis SID

2019 South Valley WRF

Outstanding Lagoon System

	W/DISCHARGE	W/O DISCHARGE
2010	Wellsville	Ash Creek SSD
2011	Enterprise City	Ash Creek SSD
2012	Logan City	Ash Creek SSD
2013	Plain City	Kanab City
2014	Lake Point	Escalante City
2015	-	Tropic
2016	-	Francis City
2017	-	-
2018	-	-
2019	Logan City	-

Outstanding Biosolids Program

2009	Central Davis CSD	
2010	Cedar City	
2012	Tooele	
2013	Central Valley WRF	
2014	Orem WRF	
2015	Orem WRF	
2016	Central Valley WRF	
2017	Orem WRF	
2017	Central Davis	Andy Morris
2018	Central Valley WRF	
2019	Orem WRF	

WEAU HISTORIC AWARDS

Outstanding Laboratory Award

2009	North Davis Sewer District
2010	North Davis Sewer District
2011	North Davis Sewer District
2012	North Davis Sewer District
2013	Provo City
2014	Central Valley
2015	Jordan Basin WRF
2016	Provo City
2017	South Valley WRF
2018	-
2019	Jordan Basin WRF

Outstanding Collection System Operator <5MGD

	FACILITY	RECIPIENT
2010	Lindon City	Kevin Muhlestein
2011	Vernal City	Terry Shiner
2013	Ash Creek SID	Gary Wilcox
2014	Midvalley	Jared Syme
2016	Magna	Raymond Mondragon
2017	Magna	Rob Jaterka
2018	Magna	Clint Giles
2019	Magna	Dallas Henline

Outstanding Collection System Operator >5MGD

	FACILITY	RECIPIENT
2009	Orem City	Chad Johnson
2010	Cottonwood Imp Dist	Steve Desmarais
2011	Central Davis	Nathan Cloward
2012	Central Davis	John Woodrow
2013	Central Davis	Brent Jorgenson
2014	Orem City	Terrance Harris
2015	Orem City	Dylan Hanseen
2016	Snyderville Basin WRF	Dustin Lewis
2017	Central Davis	Andy Morris
2018	Cottonwood Imp Dist	Jonathan Gubler
2019	-	-

WEAU HISTORIC AWARDS

Outstanding Pretreatment Specialist

	FACILITY	RECIPIENT
2010	Payson City	Sarah Leavitt
2011	Snyderville	Marlo Davis
2012	Logan	Brad Jones
2013	South Valley WRF	Spencer Parkinson
2014	South Valley WRF	Delaun Fullmer
2015	Jordan Basin WRF	Adam Butterfield
2016	Snyderville	Chad Burrell
2017	Timpanogos SSD	Davis Land
2018	Central Valley WRF	Talena Walton
2019	South Valley WRF	Lori Gord

Outstanding Lab Technician

	FACILITY	RECIPIENT
2009	North Davis	Kay Moser
2010	Cedar City	Andrew Oko
2011	North Davis	Tyler Weaver
2012	North Davis	Rodney Shields
2013	Central Weber SID	Kevin Taylor
2014	Central Valley	Tiffani Adams
2015	Jordan Basin WRF	Megan Moak
2016	South Valley WRF	Aimee Mathies
2017	Central Valley WRF	Missy Willes
2018	-	-
2019	Jordan Basin WRF	Erica Keepers

Outstanding Maintenance

	FACILITY	RECIPIENT
2009	North Davis SD	Robert Burt
2011	Central Valley	Troy deWolfe
2012	North Davis SD	David Barnes
2013	Central Weber SID	Brett Olson
2014	Orem WRF	Allonzo Fulmer
2015	Jordan Basin WRF	Doug Hilton
2016	North Davis SD	Shane McCowen
2017	North Davis SD	Shawn Swenson
2018	Central Valley WRF	Hadley Gunn
2019	Central Valley WRF	Roger Orullian

WEAU HISTORIC AWARDS

Outstanding Pretreatment Program

2009 Provo City

2010 Logan City

2011 St. George

2012 Snyderville Basin WRD

2013 Central Valley Water

2014 South Valley WRF

2015 Salt Lake City

2016 Orem City

2017 Cedar City

2018 Central Valley Water

Excellence Award

2009 North Davis Sewer District

2010 Cedar City

2011 North Davis Sewer District

2012 Snyderville Basin WRF

2013 Central Valley WRF

2014 -

2015 Orem City & Jordan Basin

2016 South Valley WRF & Snyderville Basin WRF

2017 Central Valley WRF & Snyderville Basin WRF

2018 Orem City

2019 Orem City & South Valley WRF

Arthur Sidney Bedell Award

2009 Kevin Cowan

2010 Sharon Siebold

2011 Lance Wood

2012 Dan James

2013 Jill Houston

2014 -

2015 Paul Krauth

2016 Lonn Rasmussen

2017 Jon Adams

2018 Chad Burrell

2019 Tom Holstrom

WEAU HISTORIC AWARDS

William D. Hatfield Award

2009	Pete Deligt
2011	Chad Burrell
2012	Leland Myers
2013	Dal Wayment
2014	-
2015	Clifton Specht
2016	Marlo Davis
2017	Dale Christensen
2018	Steve Williams
2019	Ken Burgener

Grant K. Borg Award

2012	Jim Schwing
2016	Ken Burgener

Laboratory Analyst Excellence Award

2011	Richard Mickelsen
2013	Sherry Sheffield
2014	-
2015	Megan Moak
2016	Anthony Daw
2017	Debbie DeJong
2018	Tiffini Adams
2019	-

George W. Burke Award

2013	Snyderville Basin WRF
2015	North Davis Sewer District
2016	Snyderville Basin WRF
	South Valley WRF
2018	Cottonwood Improvement District
2019	North Davis Sewer District

WEAU HISTORIC AWARDS

WEAU Select Society of Sanitary Sludge Shovelers

2001 Brent Canham
2001 John Housley
2001 Dave Ritter
2001 Mark Schmitz
2002 Craig Ashcroft
2002 Terral Dunn
2002 Phil Gwinnup
2002 Sharon Siebold
2003 Jill Houston
2003 Robert Okey
2003 Pete Deligt
2003 Michael Luers
2004 John Jewell
2004 Kevin Cowan
2004 Lance Wood
2004 Tim Beavers
2004 Gordon Beals
2005 Ken Brand
2005 Cory Firzlaff
2005 Lee Miller
2005 Jim Schwing
2005 Dru Whitlock
2006 Brian Atwood
2006 Kent Johnson
2006 Myron Bachman
2006 Cory Christiansen
2006 Barbara Davies
2006 Mark Ogren
2007 Kyle Cluff
2007 Dan Olson
2008 Jeff Kirkman
2008 Roger Robinson
2009 Chad Burrell
2009 Michael Foerster
2009 Sherry Sheffield
2009 Lawrence Burton
2010 Jennifer Robinson
2010 Chris Reilley
2011 Ken Burgener
2011 Anthony Daw
2011 Gary Hill
2011 Darrell Dixon
2012 Clint Rogers
2012 Matthew Myers
2012 Jeff Wiest
2012 Ron Clements
2012 Phil Heck
2012 Steve Harrison
WEF (Honorary)
2013 Mike McFarland
2013 John Mackay
2013 Brett Olsen
2014 Greg Neff
2014 Don Telford
2014 John Marteliz
2014 Marlo Davis
2014 Tiffani Adams
2014 Sarah Leavitt
2015 Gordon Evans
2015 Trevor Lindley
2015 Jeff Beckman
2015 Giles Demke
2015 Dan Griffin
2016 Jared O'Brien
2016 Tavis Timothy
2017 David Hatch
2017 Rob Jaterka
2017 Bryan Mansell
2017 Brandon Wyatt
2018 Jeremy Deppe
2018 Tim Madsen
2018 Jeff McFarlane
2018 Gary Vance

WEAU ROSTER OF PAST OFFICERS 2002-2020

President

2002-2003	Lonn Rasmussen	Salt Lake City
2003-2004	Dan James	Salt Lake City
2004-2005	Dave Ritter	Salt Lake City
2005-2006	Craig Ashcroft	Salt Lake City
2006-2007	Kevin Cowan	Layton
2007-2008	Sharon Siebold	Salt Lake City
2008-2009	Lance Wood	Ogden
2009-2010	Mark Schmitz	Salt Lake City
2009-2011	Jill Houston	Kaysville
2011-2012	Dan Olson	Tooele
2012-2013	Paul Krauth	Salt Lake City
2013-2014	Dru Whitlock	Salt Lake City
2014-2015	Mike Foerster	Salt Lake City
2015-2016	Phil Heck	Salt Lake City
2016-2017	Matt Myers	Bountiful
2017-2018	Clint Rogers	Salt Lake City
2018-2019	Jeff Beckman	Salt Lake City
2019-2020	Giles Demke	Orem City

President-Elect

2002-2003	Dan James	Salt Lake City
2003-2004	Dave Ritter	Salt Lake City
2004-2005	Craig Ashcroft	Salt Lake City
2005-2006	Kevin Cowan	Layton
2006-2007	Sharon Siebold	Salt Lake City
2007-2008	Lance Wood	Ogden
2008-2009	Mark Schmitz	Salt Lake City
2009-2010	Jill Houston	Kaysville
2010-2011	Dan Olson	Tooele
2011-2012	Paul Krauth	Salt Lake City
2012-2013	Dru Whitlock	Salt Lake City
2013-2014	Mike Foerster	Salt Lake City
2014-2015	Phil Heck	Salt Lake City
2015-2016	Matt Myers	Bountiful
2016-2017	Clint Rogers	Salt Lake City
2017-2018	Jeff Beckman	Salt Lake City
2018-2019	Giles Demke	Orem City
2019-2020	Chris Reilley	Salt Lake City

Vice President

2002-2003	Dave Ritter	Salt Lake City
2003-2004	Craig Ashcroft	Salt Lake City
2004-2005	Kevin Cowan	Layton
2005-2006	Sharon Siebold	Salt Lake City
2006-2007	Lance Wood	Ogden
2007-2008	Mark Schmitz	Salt Lake City
2008-2009	Jill Houston	Kaysville
2009-2010	Dan Olson	Tooele
2010-2011	Paul Krauth	Salt Lake City
2011-2012	Dru Whitlock	Salt Lake City
2012-2013	Mike Foerster	Salt Lake City
2013-2014	Phil Heck	Salt Lake City
2014-2015	Matt Myers	Bountiful
2015-2016	Clint Rogers	Salt Lake City
2016-2017	Jeff Beckman	Salt Lake City
2017-2018	Giles Demke	Orem City
2018-2019	Chris Reilley	Salt Lake City
2019-2020	Trevor Lindley	Salt Lake City

WEAU ROSTER OF PAST OFFICERS 2000 -2020

Secretary/Treasurer

2000-2004	Leland Myers	Salt Lake City
2004-2008	Michael Boyle	Park City
2008-2011	Dru Whitlock	Salt Lake City
2011-2014	Clint Rogers	Salt Lake City

Secretary

2014-2015	Giles Demke	Salt Lake City
2015-2016	Giles Demke	Salt Lake City
2016-2017	Giles Demke	Salt Lake City
2017-2018	Trevor Lindley	Salt Lake City
2018-2019	Trevor Lindley	Salt Lake City
2019-2020	Chad Burrell	

Treasurer

2014-2015	Clint Rogers	Salt Lake City
2015-2016	David Hatch	Salt Lake City
2016-2017	David Hatch	Salt Lake City
2017-2018	David Hatch	Salt Lake City
2018-2019	John Richardson	Salt Lake City
2019-2020	John Richardson	Salt Lake City

Federation Delegates

2009-2010	Reed Fisher	Salt Lake City
2009-2010	Kevin Cowan	Layton
2010-2011	Reed Fisher	Layout
2010-2011	Kevin Cowan	Layton
2011-2012	Kevin Cowan	Layton
2012-2015	Lance Wood	Ogden
2012-2015	Mike Luers	Park City
2014-2017	Jill Houston	Kaysville
2015-2018	Lonn Rasmussen	Sandy
2017-2020	Mike Foerster	Salt Lake City
2018-2020	Sherry Sheffield	Salt Lake City

Association Directors

2001-2002	Paul Krauth	Salt Lake City
	Craig Ashcroft	Salt Lake City
	David Kinnear	Salt Lake City
	Dave Ritter	Salt Lake City
2002-2003	Paul Krauth	Salt Lake City
	Craig Ashcroft	Salt Lake City
	Michael Boyle	Park City
2003-2004	Kevin Cowan	Syracuse
	Dennis Gunn	Coalville
	Michael Boyle	Park City
	Kevin Cowan	Layton
	Sharon Siebold	Salt Lake City
2004-2005	Dennis Gunn	Coalville
	Jill Houston	Kaysville
	Lance Wood	Ogden
	Sharon Siebold	Salt Lake City
2005-2006	Jill Houston	Kaysville
	Lance Wood	Ogden
	Mark Schmitz	Salt Lake City
	Jeff Richins	Price River

WEAU ROSTER OF PAST OFFICERS 2007-2020

Association Directors

2007-2008	Jill Houston	Kaysville
	Mark Ogren	Provo
	Leon Allen	Salt Lake City
	Dan Olson	Tooele
2008-2009	Mark Ogren	Provo
	Leon Allen	Salt Lake City
	Dan Olsen	Tooele
	Paul Krauth	Salt Lake City
2009-2010	Mark Ogren	Provo
	Paul Krauth	Salt Lake City
	Michael Foerster	Salt Lake City
	Sherry Sheffield	Salt Lake City
2010-2011	Michael Foerster	Salt Lake City
	Sheer Sheffield	Salt Lake City
	Matt Myers	Salt Lake City
	Jeff Wiest	Salt Lake City
2011-2012	Michael Foerster	Salt Lake City
	Matt Myers	Salt Lake City
	Jeff Wiest	Salt Lake City
	Phil Heck	Salt Lake City
2012-2013	Matt Myers	Salt Lake City
	Jeff Wiest	Salt Lake City
	Phil Heck	Salt Lake City
	Chris Reilley	Salt Lake City
2013-2014	Matt Myers	Bountiful
	Jeff Wiest	Salt Lake City
	Chris Reilley	Salt Lake City
	Mike McFarland	Logan
	Chris Reilley	Salt Lake City
2014-2015	Jeff Wiest	Salt Lake City
	Chris Reilley	Salt Lake City
	Mike McFarland	Logan
	Jennifer Robinson	Salt Lake City
2015-2016	Jeff Wiest	Salt Lake City
	Chris Reilley	Salt Lake City
	Mike McFarland	Logan
	Jennifer Robinson	Salt Lake City
2016-2017	Jeff Wiest	Salt Lake City
	Chris Reilley	Salt Lake City
	Mike McFarland	Logan
	Sarah Leavitt	Payson
2017-2018	Jeff Wiest	Salt Lake City
	Chris Reilley	Salt Lake City
	Sarah Leavitt	Payson
	Ken Burgener	Syracuse
2018-2019	Jeff Wiest	Salt Lake City
	Sarah Leavitt	Payson
	Ken Burgener	Syracuse
	Rob Jaterka	Magna
2019-2020	Sarah Leavitt	Payson
	Rob Jaterka	Magna
	Jared Jenkins	Plain City
	Marianna Sochanska	Salt Lake City

WEAU ROSTER OF PAST OFFICERS 1998 - 2020

Professional Wastewater Operators Representatives

1998-1999	Dennis Gunn
1999-2000	Lawrence Burton
2000-2001	Sharon Siebold
2001-2002	Pete DeLigt
2002-2003	John Jewell
2003-2004	Erik Nemcek
2004-2005	Ken Brand
2005-2006	Kent Johnson
2006-2007	Myron Bachman
2007-2008	Kyle Cluff
2008-2009	Jeff Kirkman
2009-2010	Chad Burrell
2010-2011	Chris Reilley
2011-2012	Gary Hill
2012-2013	Ron Clements
2013-2014	Brett Olson
2014-2015	John Marteliz
2015-2016	Gordon Evans
2016-2017	Jared O'Brien
2017-2018	Rob Jaterka
2018-2019	Jeremy Deppe
2019-2020	Clay Marriott
2020-2021	Tyler Barfuss

Professional Wastewater Operators Elect

2010-2011	Gary Hill
2011-2012	Ron Clements
2012-2013	Brett Olson
2013-2014	John Marteliz
2014-2015	Gordon Evans
2016-2017	Rob Jaterka
2017-2018	Jeremy Deppe
2018-2019	Clay Marriott
2019-2020	Tyler Barfuss
2020-2021	Daniel Watts

Prepared by:

BOWEN COLLINS & ASSOCIATES

water environment association of Utah

wef Member Association

WEAU Approved Conference/Training

Hours of Training: _____ Date: _____

Authorized Signature: _____