



IWPC 2019



Illinois Association
of Water Pollution
Control Operators

TOGETHER for **CLEAN WATER**

FEBRUARY 11-13, 2019

**ILLINOIS
WASTEWATER
PROFESSIONALS
CONFERENCE**

SPRINGFIELD, IL

**CONFERENCE
PROGRAM**

TECHNICAL SESSIONS | EXHIBITS | AWARDS | SPECIAL EVENTS

PRESIDENTS' WELCOME



2018-2019 IAWPCO PRESIDENT

Rick Lallish

First, I would like to welcome everyone to the 2019 Illinois Wastewater Professionals Conference. Hard to believe the Illinois Association of Water Pollution Control Operators have reached their 84th Annual Conference. It is with great honor and pleasure to share this

event with the Illinois Water Environment Association for the third year. Both of our great organizations work toward a common goal of being stewards of our water resources. We both strive to provide fellowship and training opportunities for our members throughout the state, nation and internationally through WEF. Our industry is changing at a lightning pace; new modes of treatment constantly being introduced. We have come a long way from aqua-ducts to lagoons and now forms of activated sludge we only thought of in recent years. Our members are hungry for educational opportunities to learn these new technologies and sharpen their skills for everyday operations.

This year's conference reflects this trend; our committees have been hard at work scrutinizing and vetting speakers and presentations. The boards have been busy putting the show together to give our membership and guests a unique and rewarding experience. We have many people that have worked in the background who may never receive any gratuity for the hard work put in. I would like to thank them all personally for all they have sacrificed and time spent. This show would not be without your efforts: Thank you! We have many excellent presentations and workshops in store for whatever your needs are. The IAWPCO boards have put together a Wednesday line-up geared toward the wastewater operator; I hope we have what you want. Our lineup of products and suppliers in the exhibit hall is very wide-ranging; it seems to grow each year. I thank all of our vendors and suppliers; this is very much your show too!

This is a great chance to meet many people from both of our organizations. The opportunities to network has never been greater. Platforms such as Facebook and Twitter are fast becoming a working part of the conference; feel free to add to the discussions. We all have one thing in common: wastewater, so let us talk about it. We can all learn something from each other and help the next person down.

We are very happy you are here, if this is your first time then WELCOME! Everyone else, I am just happy to see you again! Stop and tell the new attendees all about the conference, they are the ones who will be leading soon, that is why this organization lives and grows.



2018-2019 IWEA PRESIDENT

Kam Law

On behalf of the Illinois Water Environment Association, it is my privilege to welcome you to the Illinois Water Professionals Conference (IWPC). This is our third year joining forces with the Illinois Association of Water Pollution Control Operators (IAWPCO). With IAWPCO,

the IWPC is truly the conference of the year for the water professionals. From workshops to mobile and technical sessions, and from Operators Challenge to Student Poster Competition, the 2019 program includes a broad spectrum of sessions and activities that any water professionals will be able to engage and participate.

As a proud member of the Water Environment Federation (WEF), the IWEA has always aligned with WEF's vision and values. In support of the latest WEF InFLOW (Introducing Future Leaders to Opportunities in Water) program inaugurated at the 2018 WEFTEC, the IWEA, with support of the IAWPCO, included InFLOW in this year's IWPC program. InFLOW is an initiative that strives to identify promising students from underrepresented minority groups who are interested in professional careers in the water industry. We look forward to a successful pilot year that will result in a continuation of the program to help shape the future of the water industry.

This year also marks the 40th anniversary of IWEA. We are humbled to welcome back some of the founding members to the annual conference and to witness the fruit of their hard work after all these years. Be on the lookout for the founding members throughout the conference and be inspired.

I would like to thank all the sponsors, exhibitors, and most importantly, all of you who attend the conference year after year. Your support makes the conference stronger and stronger. I would also like to express my gratitude to our partner, IAWPCO, who is willing to try and experiment new activities with us three years in a row. Many thanks also go to the Annual Conference Committee which included representatives from both organizations. Their endless effort and professionalism in organizing and in making sure of a successful conference is much appreciated. I hope you take advantage of what IWPC has to offer: learn the latest in the industry, make new acquaintances, connect with old colleagues, and most importantly, have fun!

IWPC 2019

— TOGETHER FOR CLEAN WATER —

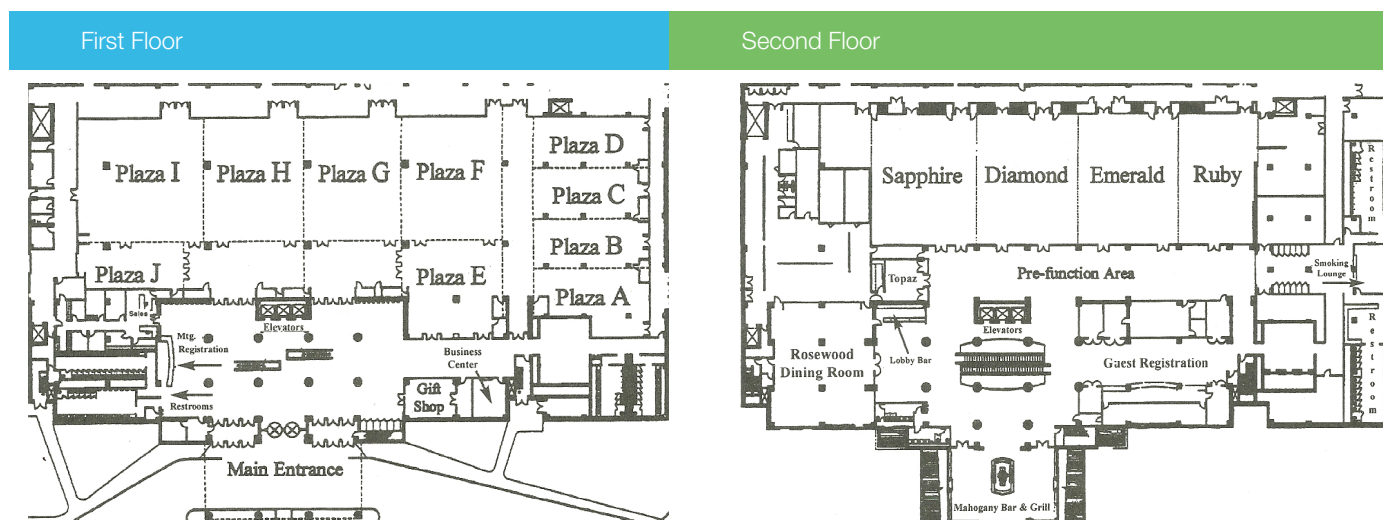
February 11-13, 2019

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CONFERENCE CENTER FACILITIES MAP

IWEA and IAWPCO are pleased to hold this joint conference here at the Crowne Plaza Springfield. We strive to offer attendees with a venue that provides comfort, functionality and an exceptional learning environment. We wish you the best experience at this year's conference.



SCHEDULE AT A GLANCE

MONDAY, FEBRUARY 11, 2019		
TIME	EVENT	ROOM/LOCATION
8:00 am	Registration	Registration Desk - 1st Floor
8:00 am - 4:00 pm	Exhibitors Set-Up	Exhibit Hall
9:00 am - 10:00 am	IAWPCO Executive Board Meeting	Capital 1 - 3rd Floor
10:00 am - 11:00 am	Opening Conference Welcome, Dr. Krishna Pagilla	Sapphire
11:00 am - 11:30 am	Keynote Speaker, Tom Kunetz, WEF President	Sapphire
11:30 am - Noon	IWEA Annual Business Meeting	Sapphire
Noon - 1:00 pm	Networking Luncheon - All Registered Attendees Welcome	Diamond/Emerald
1:00 pm - 2:00 pm	Sustainability Technical Session	Ruby
1:00 pm - 4:30 pm	Biosolids Technical Session	Plaza C/D
1:30 pm - 4:30 pm	LIFT: Leaders Innovation Forum for Technology Technical Session	Sapphire
1:30 pm - 4:30 pm	Laboratory Workshop	Plaza A/B
1:00 pm - 5:00 pm	Technical Sessions	
2:00 pm - 3:00 pm	Young Professionals Session	Ruby
2:30 pm - 3:00 pm	Break	2nd Floor Hallway
3:30 pm - 4:30 pm	Posters and Beer Event	2nd Floor Hallway
4:30 pm - 5:30 pm	Young Professional Reception	Ruby
6:00 pm - 9:00 pm	IWEA 40th Annual Awards Banquet	Diamond/Emerald Ballroom

SCHEDULE AT A GLANCE (CONTINUED)

TUESDAY, FEBRUARY 12, 2019

TIME	EVENT	ROOM/LOCATION
8:00 am	Registration	Mtg. Registration Desk - 1st Floor
8:30 am	Plant Operations Committee Meeting	Illinois
9:00 am - 5:00 pm	Technical Sessions and Workshops	
9:00 am - 6:00 pm	Exhibit Hall Open	
9:00 am - Noon	Safety Workshop	Plaza A/B
9:00 am - Noon	Laboratory Technical Session	Plaza C/D
9:00 am - Noon	Wet Weather Technical Session	Ruby
9:00 am - Noon	Nutrients I Technical Session	Sapphire
10:00 am - 10:30 am	Morning Refreshment Break	Exhibit Hall
10:30 am - Noon	Mobile Sessions	Exhibit Hall
Noon - 1:00 pm	Boxed Lunch	Exhibit Hall
1:00 pm - 3:00 pm	Pretreatment Technical Session	Plaza A/B
1:00 pm - 4:00 pm	Operators Challenge	Exhibit Hall
1:00 pm - 5:00 pm	Electrical & Controls Technical Session	Plaza C/D
1:00 pm - 5:00 pm	Collections Technical Session	Ruby
1:00 pm - 5:00 pm	Nutrients II Technical Session	Sapphire
3:00 pm - 4:00 pm	Afternoon Refreshment Break	Exhibit Hall
4:00 pm - 5:00 pm	Energy Technical Session	Plaza A/B
4:00 pm - 6:00 pm	Exhibitors Reception	Exhibit Hall

WEDNESDAY, FEBRUARY 13, 2019

TIME	EVENT	ROOM/LOCATION
8:00 am	Registration	Registration Desk- 1st Floor
8:00 am - 9:00 am	Exhibitors Breakfast	Exhibit Hall
8:00 am - 12:00 pm	Exhibit Hall Open	
8:30 am - 9:00 pm	IAWPCO Annual Business Meeting	Ruby
8:30 am - 2:00 pm	Spouse Program	Mtg. Registration Desk - 1st Floor
9:00 am - 4:30 pm	Technical Sessions	
9:00 am - Noon	Operations I Technical Session	Ruby
9:00 am - Noon	Planning Technical Session	Plaza A/B
9:00 am - Noon	Watershed I Technical Session	Sapphire
10:30 am - 11:00 am	Morning Refreshment Break	Exhibit Hall
12:00 pm - 1:30 pm	IAWPCO Annual Association Lunch	Diamond/Emerald Ballroom
12:00 pm - 1:00 pm	IWEA Executive Board and Chair Lunch/Meeting	TBD
12:00 pm - 5:00 pm	Exhibitors Dismantle	Exhibit Hall
1:00 pm - 4:30 pm	Watershed II Technical Session	Sapphire
1:30 pm - 2:30 pm	Illinois Governor's Mansion Tour (Pre-registration required)	410 E. Jackson St, Springfield
1:30 pm - 3:00 pm	Operator Certification Review Class 3 and 4	Ruby
1:30 pm - 5:30 pm	ERTC Review Classes 1 and 2	Plaza A/B
3:00 pm - 3:30 pm	Afternoon Refreshment Break	Hallway
3:30 pm - 5:00 pm	Operator Certification Review Class 1 and 2	Ruby
6:00 pm - 10:00 pm	IAWPCO 84th Awards Banquet	Diamond/Emerald Ballroom

THURSDAY, FEBRUARY 14, 2019

TIME	EVENT	ROOM/LOCATION
9:30 am - 1:00 PM	IEPA Certification Exam	Plaza E

SPECIAL GUEST



2018-2019 WEF PRESIDENT

Thomas E. Kunetz

Monday, February 11, 11:00 am

Thomas E. Kunetz is the 2018-2019 President of the Water Environment Federation (WEF), an international organization of water quality professionals headquartered in Alexandria, Va.

Tom is the Assistant Director of Monitoring and Research for the Metropolitan Water Reclamation District of Greater Chicago, leading the District's efforts on key strategic engineering initiatives. He has over 30 years of experience in the field of environmental engineering in both the public and private sectors, focusing on design of wastewater treatment facilities, improving the water environment, and protection of public health.

A WEF member since 1992, Tom is the past chair of the Municipal Wastewater Treatment Symposium, and served on the Program Committee, and the Municipal Water Resource Recovery Design Committee.

He was a member of the Chicago WEFMAX organizing committee, and served on the Stockholm Junior Water Prize organizing committee with the Illinois Water Environment Association.

Tom is a registered professional engineer in the state of Illinois. He is a graduate of the WEF-sponsored Water and Wastewater Leadership Center at the University of North Carolina, the 2012 recipient of the Charles Walter Nichols Award for Environmental Excellence from the American Public Works Association, and a WEF Fellow. He has served as technical advisor to the student chapter of Engineers for a Sustainable World at Northwestern University, traveling to Panama with the students.

Tom earned his B.S. in environmental engineering from Pennsylvania State University and an M.S. in water resources engineering from Villanova University.



The Water Environment Federation (WEF) is a not-for-profit technical and educational organization of 34,000 individual members and 75 affiliated Member Associations representing water quality professionals around the world. Since 1928, WEF and its members have protected public health and the environment. As a global water sector leader, our mission is to connect water professionals; enrich the expertise of water professionals; increase the awareness of the impact and value of water; and provide a platform for water sector innovation. To learn more, visit www.wef.org.



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NETWORKING AND EVENTS

NETWORKING LUNCHESES

MON, Feb 11 12:00 pm - 1:00 pm
IWEA Networking Luncheon | Diamond/Emerald

TUE, Feb 12 12:00 pm - 1:00 pm
Exhibitor's Boxed Luncheon | Exhibit Hall

WED, Feb 13 12:00 pm - 1:30 pm
IAWPCO Annual Luncheon | Diamond/Emerald

Join us each day for lunch to network with your peers at the following events included with your conference registration:

Sponsors

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Crawford, Murphy & Tilly, Inc.
LAI, Ltd.



IWEA ANNUAL BUSINESS MEETING

MON, Feb 11 | 11:30 am - 12:00 pm
Sapphire - 2nd Floor

Immediately following the keynote speakers, IWEA will be holding its annual business meeting. The brief meeting will include the election of the 2019-2020 Executive Board and an update on the financial health of IWEA by the Treasurer. Then, please join us at the IWEA networking luncheon in the Diamond/Emerald ballrooms. This luncheon is included in your registration.



IAWPCO ANNUAL LUNCHEON

WED, Feb 13 | 12:00 pm - 1:30 pm
Diamond/Emerald Ballrooms - 2nd Floor

IAWPCO invites you to attend this annual luncheon featuring keynote speaker Robert Trueblood, Executive Director of Fox River Water Reclamation District. This luncheon is included in your registration.

EXHIBITORS' GRAB & GAB BREAKFAST

WED, Feb 13 8:00-9:00 am | Exhibit Hall

Rise & Shine! Breakfast will be served in the Exhibit Hall so you can check out the exhibitors' booths before technical sessions begin. This meal is included with your conference registration.



ANNUAL AWARDS BANQUETS

IWEA 40th Awards Banquet

MON, Feb 11 | 6:00-9:30 p.m.
Diamond/Emerald Ballrooms - 2nd Floor

Join us in celebrating IWEA's 40th anniversary. Tickets for the awards banquets can be purchased at registration desk if not purchased with your registration.

IAWPCO 84th Awards Banquet

WED, Feb 13 | 6:00-10:00 pm
Diamond/Emerald Ballrooms - 2nd Floor

Come join us for a special evening of good food, friendship and fun. Tickets for the awards banquets can be purchased separately if not purchased with your registration, visit registration desk.

REFRESHMENT BREAKS

Join us for complimentary refreshments throughout the conference. Take a break from the technical sessions or the exhibits and catch up with colleagues.

MON, Feb 11 2:30-3:00 pm | 2nd Floor Hallway

TUE, Feb 12 10-10:30 am | Exhibit Hall
3-4:00 pm | Exhibit Hall

WED, Feb 13 10-10:30 am | Exhibit Hall
3-3:30 pm | 2nd Floor Hallway

Sponsors

MORNING BREAKS

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AFTERNOON BREAKS

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Fehr Graham
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Trotter Associates



EXHIBITORS RECEPTION

TUE, Feb 12 | 4:00 pm – 6:00 pm
Exhibit Hall

Join us on Tuesday for a casual TOGETHER FOR CLEAN WATER Exhibitors Reception. It's a great way to meet colleagues, network and visit with all of the vendors. Use your drink tickets and sample some complimentary appetizers. Cash bar also available.

Sponsored by: **SOLS SYSTEMS**



YOUNG PROFESSIONALS EVENTS

POSTERS AND BEER

MON, Feb 11 | 3:30–4:30 pm

Ruby Room - 2nd Floor Hallway Outside Ruby Room

Sponsored by:
Walter E. Deuchler Associates, Inc.

STUDENTS & YOUNG PROFESSIONALS RECEPTION

MON, Feb 11 | 4:30–5:30 p.m.

Ruby Room - Second Floor

Student and Young Professionals

Fostering Future Industry Professionals

The Student and Young Professionals Committee plans and hosts networking activities and events for students and YPs. The committee encourages student and YP participation in water related degrees and professions and in the Illinois Water Environment Association and Water Environment Association, IWEA's parent organization. Young professionals are defined as those individuals with up to ten years work experience in the industry and less than 35 years of age. Students are defined as those individuals who are enrolled in a minimum of 6 credit hours in an accredited college or university. Learn more about the committee at our events during the conference or visit IWEA's website for more information.

Student and Young Professional Poster Competition

The 2019 Student and Young Professional Poster Competition is intended to provide students and young professionals the opportunity to present their research and/or design project. Students and young professionals will be showcasing their work on a 48" x 36" poster and will be competing for cash prizes. Please join us for Posters and Beer – a great networking event that allows you to meet fellow SYPCs, enjoy your favorite brew and informally discuss the projects with students and young professionals.

Students and Young Professionals Reception

Following the Posters and Beer event, you are invited to attend the Students and Young Professionals Reception. All IWEA members and registered attendees are welcome to attend this event. Registered students and YPs will receive two free drink tickets with their name and badge.

This will be a fun-filled evening and a great casual networking event with peers and "seasoned" professionals. No pre-registration required. We look forward to seeing you there!



The Water Environment Federation (WEF) successfully introduced the WEF InFLOW (Introducing Future Leaders to Opportunities in Water) program at WEFTEC 2018, in New Orleans, Louisiana. This program is an initiative that strives to identify promising students from under-represented minority groups and expose them to professional careers in the water industry. InFLOW is a scholarship program, which invites college students to attend the conference to solidify their interest in working in the water sector and help foster a network within the organization and water sector to increase probabilities for employment and long term success.

We are excited to introduce the InFLOW program at this year's IWPC 2019. Minority students from Lincoln Land Community College, Loyola University, Southern Illinois University Edwardsville - Environmental Resource Training Center and University of Illinois Urbana-Champaign have been invited to participate at the conference at no cost.

The InFLOW student itinerary includes participation in Technical Sessions, Student and Young Professionals activities, Mobile Sessions in the Exhibit Hall, Operations Challenge and various networking opportunities throughout the conference.

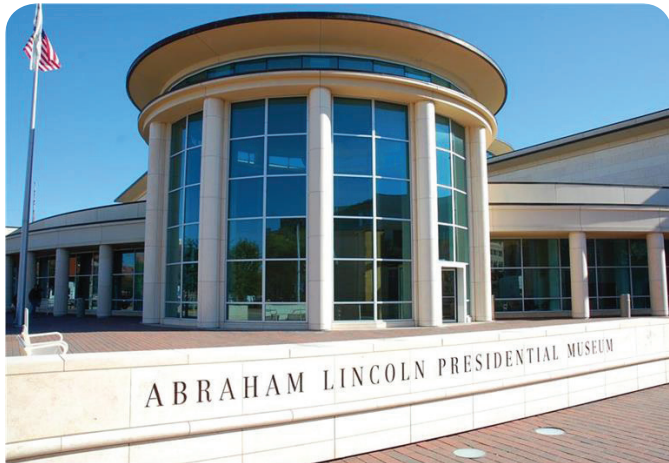
Please join us in welcoming our 2019 InFLOW students to this year's conference!

INFLOW is sponsored by:

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IWPC 2019 SPOUSE PROGRAM



Abraham Lincoln Presidential Library

TUESDAY, February 12, 2019

Meet in hotel lobby at 8:30 a.m.

All are welcome!

On Tuesday February 12th the Spouse Program will be holding their **Spouse Day Out**. This year the participants will be meeting in the lobby of the hotel at 8:30am. We will be spending the day at the Abraham Lincoln Presidential Library and Museum.

For lunch we will be heading over to the **Osaka Japanese Restaurant** for an hibachi lunch. We should be heading back to the hotel around 2 p.m.

Past Spouse Program Outings:

- 2016** Visit Dana Thomas House, Lunch at Obed & Isaac's Microbrewery, Mani or Pedi at local spa
- 2017** Visit Abraham Lincoln Tomb, Lunch at D'Arcy's Pint, Visit to Sheel's Sporting Goods
- 2018** Visit Abraham Lincoln's New Salem, Lunch at Chesapeake Seafood House

IWPC 2019 TOUR



Illinois Governor's Mansion Tour

WEDNESDAY, February 13, 2019

1:30 p.m. to 2:30 p.m.

410 E. Jackson Street, Springfield, IL 62701

Pre-registration and Government Issue Photo ID Required

The Illinois Governor's Mansion is the official residence of the Governor of Illinois. It is located at 410 E. Jackson Street in the state capital, Springfield, Illinois. The Italianate-style Mansion was designed by Chicago architect John M. Van Osdel with a modified 'H' shaped configuration with a long central section, and the front and back on the sides of the 'H'. The 16-room manor was completed in 1855 and was first occupied by Governor Joel Matteson, who held the official grand opening on January 10, 1856. It is one of the oldest historic residences in the state of Illinois and one of the three oldest continuously occupied governor's mansions in the United States. In 1898 alterations to the exterior added neoclassical elements. In 1972, the Illinois Governor's Mansion Association was founded as a charitable corporation to assist in the maintenance and programming at the mansion. The Mansion was added to the National Register of Historic Places in 1976. The Mansion recently went through a complete restoration.

KEYNOTE SPEAKERS



PROFESSOR AND ENVIRONMENTAL
ENGINEERING PROGRAM DIRECTOR,
UNIVERSITY OF NEVADA-RENO.
DIRECTOR OF NEVADA WATER
INNOVATION INSTITUTE

**Krishna R. Pagilla, Ph.D.,
P.E., BCEE, IWA Fellow,
WEF Fellow**

MON, Feb 11, 10:00 am

Dr. Krishna Pagilla is a Professor and Environmental Engineering Program Director at the University of Nevada, Reno. He is also the Director of Nevada Water Innovation Institute, a university-utility collaboration to meet local water technology and development needs, and drive innovation in the water sector. Dr. Pagilla's expertise is in the field of water quality, water resource recovery, indirect potable water reuse, and environmental biotechnology. He has over 200 publications including peer-reviewed papers and conference proceedings. His research group at the University of Nevada, Reno consists of 9 PhD students, 5 MS students, 3 BS students, and a research associate professor, and the research focus is on indirect potable reuse, human health effects of water reuse in agriculture, N pollution control, density-biomass function relationships in biological processes, P recovery, and water-economy nexus.

Among his numerous awards for professional achievements, he received the Thomas R. Camp Applied Research Award (2013) and Fair Distinguished Engineering Educator Award (2013) from the Water Environment Federation (WEF). He received Harrison Prescott Eddy Medal for Outstanding Applied Research on Wastewater Principles and Processes (2011) from WEF and the Bill Boyle Outstanding Educator Award (2012) from the Central States Water Environment Association. Dr. Pagilla was inducted into the Illinois Select Society of Sanitary Sludge Shovelers in 2011.

Dr. Krishna Pagilla is the Chair of the USA National Committee (USANC) of International Water Association (IWA) and serves as a member of the Governing Assembly of IWA. He has served on the Executive Board and was President (2012-13) of the Illinois Water Environment Association. Dr. Pagilla is President-Elect of Nevada Water Environment Association (2019-20). Dr. Pagilla is a Fellow of both WEF and IWA. He serves as an International Juror for the Stockholm Junior Water Prize Competition conducted by the Stockholm International Water Institute.

Dr. Pagilla has a PhD degree in Civil/Environmental Engineering from the University of California (Berkeley, CA) and MS and BE degrees in Civil/Environmental Engineering. Dr. Pagilla is a Registered Professional Engineer (PE) in Illinois and California, and Board Certified Environmental Engineer (BCEE) of the American Academy of Environmental Engineers.



EXECUTIVE DIRECTOR OF FOX RIVER
WATER RECLAMATION DISTRICT

Bob Trueblood

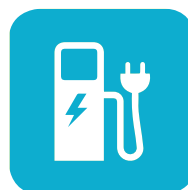
WED, Feb 13, IAWPCO Awards
Luncheon

Bob Trueblood is the Executive Director of the Fox River Water Reclamation District in Elgin, Illinois, serving

approximately 220,000 customers. He has been in the water/wastewater utility business for more than 40 years.

His career has involved working for the City of Indianapolis in the Department of Public Works for 16 years and has been with the FRWD since 2006. He has also managed utilities in Indiana, Colorado and Illinois. Bob earned his degree in Business Administration from the Indiana Institute of Technology.

At Wednesday's luncheon he will be discussing the District's compliance challenges with 3 treatment plants, 3 different NPDES permits and 1 sewage sludge land application permit. While the focus will be on phosphorus, mention will be made regarding each plant's own specific compliance issues.



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PROGRAM TRACKS

BIOS	Biosolids Management
CLSS	Operator Review Class
COLL	Collection Systems
ELEC	Electrical
ENRG	Energy
LAB	Lab
LIFT	Leaders Innovation Forum Technology
NRR1	Nutrient Removal and Recovery 1
NRR2	Nutrient Removal and Recovery 2
OPS1	Plant Operations 1
OPS2	Plant Operations 2
PLAN	Planning
PRET	Pretreatment
SUST	Sustainability
SHED1	Watershed Management 1
SHED2	Watershed Management 2
WET	Wet Weather
STORM	Stormwater Management
YP	Young Professionals
WKSP	Workshop

COURSE SCHEDULE

MONDAY, FEBRUARY 11

ROOM

1:00 pm - 4:30 pm

LIFT	Leaders Innovation Forum	SAPPHIRE
BIOS	Biosolids Management	PLAZA C/D

1:00 pm - 2:00 pm

SUST	Sustainability	RUBY
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1:30 pm - 4:30 pm

WKSP	Lab Workshop	PLAZA A/B
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2:00 pm - 3:00 pm

YP	Young Professionals	RUBY
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TUESDAY, FEBRUARY 12

ROOM

9:00 am - Noon

WKSP	Safety Workshop	PLAZA A/B
LAB	Laboratory Operations	PLAZA C/D
WET	Wet Weather	RUBY
NRR1	Nutrient Removal and Recovery 1	SAPPHIRE

1:00 pm - 3:00 pm

PRET	Pretreatment	PLAZA A/B
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1:00 pm - 5:00 pm

ELEC	Electrical & Controls	PLAZA C/D
NRR2	Nutrient Removal and Recovery 2	SAPPHIRE
COLL	Collection Systems	RUBY

4:00 pm - 5:00 pm

ENRG	Energy	PLAZA A/B
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WEDNESDAY, FEBRUARY 13

ROOM

9:00 am - Noon

OPS1	Plant Operations 1	RUBY
PLAN	Planning	PLAZA A/B
SHED1	Watershed Management 1	SAPPHIRE

1:00 pm - 4:30 pm

SHED2	Watershed Management 2	SAPPHIRE
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1:30 pm - 4:30 pm

OPS2	Plant Operations 2	RUBY
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1:30 pm - 5:00 pm

CLSS	Operator Certification Review Classes	PLAZA A/B
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TECHNICAL PROGRAM

Conference Courses

MONDAY, FEBRUARY 11		ROOM
1:00 pm - 1:30 pm		
LIFT	Understanding the Sensing Capabilities of Microbial Electrochemical Cells Presenter: Roland D. Cusick, Ph.D., Assistant Professor, Department of Civil and Environmental Engineering, University of Illinois This talk will focus on leveraging the current produced by electro-active biofilms to monitor and improve the performance of aerobic and anaerobic wastewater treatment technologies.	SAPPHIRE
BIOS	Mitigating the Unintentional Consequences of Biological Phosphorus Removal at MWRD, Colorado Presenter: Blair Wisdom, Technology and Innovation Officer - MWRD (Denver) Waste sludge from biological phosphorus removal systems has been associated with negative impacts to anaerobic solids digestion and dewatering processes. Ahead of instituting a large-scale full plant biological phosphorus removal process, Metro Wastewater Reclamation District in Denver, CO, conducted in-depth pilot-scale investigations of WAS release pretreatment and post-digestion phosphorus recovery technologies as possible approaches to mitigate undesirable effects of Bio-P on the facility's solids treatment and handling processes. Results from these evaluation will be presented to show impact to nuisance struvite production in the anaerobic digesters and downstream infrastructure, impacts to total biomass for dewatering and hauling, and dewaterability.	PLAZA C/D
SUST	Sustainability Introduction Roundtable Presenter: Dominic Brose, Environmental Soil Scientist; Barbara Scapardine, Environmental Specialist, MWRDGC; and Chris DeSilva, Professional Engineer, Greeley & Hansen	RUBY
1:30 pm - 2:00 pm		
LIFT	Installation and Performance Review of the First Permitted Algae Based Treatment System in Illinois Presenter: Daniel Johnson, Chief Technology Officer, OneWater, Inc. Illinois permitted its first algae-based wastewater treatment facility for construction in January of 2018 and bids were accepted for the project at the end of July. Construction on the project was initiated in September of 2018 with a start-up goal of November 1, 2018. The project is a 30,000 gpd surface discharge system near Gardner, Illinois which services a premanufactured housing community. The Plant discharges into the Mazon River and must comply with a 10 CBOD5, 12 TSS, and 0.9 NH3 permit limit.	SAPPHIRE





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*Per Engineering News-Record, April 25/May 2, 2016, "Top 500 Design Firms" ranking. **1.800.523.5826 | carollo.com**

MONDAY, FEBRUARY 11		ROOM
1:30 pm - 2:00 pm		
BIOS	Energy Efficiency and Nutrient Reduction Through Process Optimization in Aerobic Digester Presenter: Payal Shah, Process Engineer - Xylem, Inc. Digesters in wastewater treatment plant is the second most energy consuming unit next to biological treatment. If not used properly, it can increase nutrient loading by up to 50% in main stream secondary process via recycle. Poorly operated system can lead to treatment instability and high chemical consumption. This abstract explains the basis of Aerobic Digestion Process and emphasis on how to optimize energy, reduce nutrient recycle and chemical consumptions in design and operation.	PLAZA C/D
1:30 pm - 4:30 pm		
WKSP	Lab Workshop	PLAZA A/B
2:00 pm - 2:30 pm		
YP	The Value of Participation in Professional Societies: How to Maximize the Benefits of One's Experience Presenter: Dan Collins, Retired, Formerly of MWRDGC	RUBY
LIFT	Digital Water: Treatment Plant Operational Improvements Enabled by Machine Learning Presenter: Andrew Chastain-Howley, Director of Water Solutions, Atonix Digital Treatment Plants are complex facilities which require experienced operators to keep them running. However, there are many basic tasks and analyses which can take up significant parts of the working day and can reduce the time spent on truly running the plant and the effectiveness of those operations. This presentation will outline some of the automation, data management and machine learning techniques being developed to remove those repetitive tasks and to allow operators and management alike to concentrate on running the plants more effectively. Pumping efficiencies can be gained by constant feedback on flow dynamics and efficiency, process improvements can be better understood if the masses of time-series data are able to be automatically monitored and visualized, and regulatory requirements can be improved with online analyzers and alerting when trends (as defined through machine learning) predict future issues. Each of these features and benefits will be discussed, outlining real world data and applications from water and wastewater utilities in North America and Asia.	SAPPHIRE
BIOS	A Survey of WRRF Biosolids: Identifying the Parameters Affecting Dewatering from Bio-P and THP Presenter: Jeff Nicholson, HRSD Intern, Graduate Student, Virginia Tech Improving the dewatered cake solids of biosolids at water resource recovery facilities (WRRF) is important in order to control costs of fuel for hauling or incineration, tipping fees for landfilling, or real estate and structures dedicated to onsite storage. A survey of biosolids from Bio-P and non Bio-P plants were analyzed and dewatered to identify the primary parameters controlling dewatering. Reactor studies were also conducted in order to evaluate the effects of removing phosphorus from a Bio-P waste activated sludge (WAS) and the effects of thermal hydrolysis pretreatment (THP). The effect of THP on the anaerobic digestion and dewatering of separated primary and WAS biosolids was also investigated.	PLAZA C/D
2:30 pm - 3:00 pm		
YP	The Value of Mentorship: How to Identify and Learn from More Experienced Engineers Presenter: Lynn Kohlhaas, Senior Civil Engineer, MWRDGC	RUBY
3:00 pm - 3:30 pm		
LIFT	Emerging Water Reuse Frameworks for Military Sustainment and Resiliency Presenter: Dr. Martin Page, U.S. Army Corps of Engineers This presentation will provide an overview of water reuse frameworks and technologies being evaluated by the US Army Engineer Research and Development Center. Frameworks under investigation include building scale non-potable reuse, building scale direct potable reuse, gray water recycling, and centralized direct potable reuse. Technologies being demonstrated include intermittent biofiltration, membrane bioreactors, membrane filtration, and advanced oxidation processes. Associated health risk and life cycle cost analyses will also be discussed.	SAPPHIRE
BIOS	A Story of Biosolids Autocatalytic Pyrolysis: Process Scalability and Biochar Applications Presenter: Dr. Zhongzhe Liu, Research Assistant Professor, Marquette University Improving on-site energy generation and recovering value-added products are common goals for sustainable used water reclamation. A new process called autocatalytic pyrolysis was developed and validated to greatly enhance energy recovery from biosolids on a bench scale, sub-pilot scale, and pilot scale. The biosolids autocatalytic pyrolysis process can be coupled with other existing technologies and applications to simultaneously enhance energy recovery, minimize adverse environmental impacts, and generate value-added products from wastewater.	PLAZA C/D

MONDAY, FEBRUARY 11

ROOM

3:30 pm - 4:00 pm

LIFT

A Pilot Scale Evaluation of MABR Technology for BNR Process Intensification

SAPPHIRE

Presenter: Leon Downing, Principal Process and Innovation Leader, Black & Veatch

Membrane Aerated Biofilm Reactors (MABRs) hold promise to revolutionize the delivery of oxygen for biological treatment in Water Resource Recovery Facilities (WRRFs). The MABR combines the benefits of process intensification (i.e., increased loading capacity and reduced footprint), with aeration efficiencies up to 2 times higher than fine bubble aeration, as reported by the manufacturers. For the retrofit of an activated sludge basin, a hybrid process is typically employed, where both the suspended sludge and MABR participate in biological treatment. Pilot testing results will be presented for the MABR from a research collaboration led by Black & Veatch in California.

BIOS

Marketing of the Metropolitan Water Reclamation District of Greater Chicago's EQ Compost

PLAZA C/D

Presenter: Dominic Brose, Environmental Soil Scientist, MWRDGC

In the fall 2018, the Metropolitan Water Reclamation District of Greater Chicago (MWRD) was requested by the associate vice president, marketing and communication for Loyola University Chicago to present to a marketing class an overview of the EQ Compost program. The class was broken into several groups and each group will develop a marketing plan to address the needs identified in the MWRD's presentation. The winning team will present the marketing plan to the MWRD Board of Commissioners. This talk will provide an overview of current marketing efforts at the MWRD for EQ Compost, present the elements of the winning marketing plan developed by the Loyola University students, including target markets and outreach strategies, and discuss how those marketing elements will be incorporated into future efforts.

4:00 - 4:30 pm

BIOS

Capture Phosphate by Designer Biochars Produced from Biosolids: A Win-Win Strategy

PLAZA C/D

Presenter: Dr. Wei Zheng, Senior Research Scientist/Adjunct Faculty, NRES Illinois Sustainable Technology Center

This presentation is to illustrate designer biochars that can effectively adsorb dissolved phosphorus. The designer biochars were generated from biomass pre-treated with lime sludge collected from water treatment plants. The use of the designer biochars to capture phosphorus could be a win-win strategy, which converts waste biosolids to valuable products and reduces nutrient losses.



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MONDAY, FEBRUARY 11

ROOM

1:30 pm - 2:00 pm

LIFT

Introducing the First Full-Scale Membrane Aerated Biofilm Reactor

Presenter: Amy Underwood, Walter E. Deuchler Associates, Inc. and Cyrus McMains, PE, Yorkville-Bristol Sanitary District

SAPPHIRE

Yorkville-Bristol Sanitary District (YBSD) is subject to complying with a Total Phosphorus (TP) effluent limit compliance schedule under their National Pollutant Discharge Elimination System (NPDES) permit. In addition, local industries were planning to send waste streams with a high organic loading relative to their hydraulic discharge. This impending higher organic load coupled with implementing Biological Phosphorus Removal (BPR) by converting aeration tanks to anaerobic tanks will significantly reduce the existing treatment capacity. The existing treatment plant site is built-out and any increase in conventional treatment will require a separate treatment plant on adjacent property, which will be a large capital expenditure. In conjunction with Biological Phosphorus Removal (BPR), YBSD elected to install a Membrane Aerated Biofilm Reactor (MABR) system to increase organic treatment capacity and meet the new TP limit without construction of a separate treatment plant.

TUESDAY, FEBRUARY 12

ROOM

9:00 am - 9:30 am

LAB

Regulatory Update

Presenter: Scott D. Siders, Director of Quality Assurance, PDC Laboratories, Inc.

PLAZA C/D

WET

Cost-effective Combined Sewer Overflow Long-term Control Plan

Presenter: Jennifer Anders, Senior Client Manager, Vice President, Woodard & Curran and Andrew Jackson, Public Works Director, City of Monmouth, IL

RUBY

Case study for the revision of a Combined Sewer Overflow (CSO) Long-Term Control Plan (LTCP) for the City of Monmouth, Illinois will be presented in order to understand the challenges, opportunities, constraints, costs and benefits for a small community to cost effectively address CSOs. The presentation will focus on the City's historical improvement projects, coordination efforts with Illinois Environmental Protection Agency (IEPA), flow monitoring, hydraulic modeling, and recommendations to provide the City with a cost effective upgrade to their existing end of pipe CSO management system and drive to achieve compliance with a 2008 IEPA Compliance Commitment Acceptance Letter.

NRR1

Balancing Operations, Reliability and Costs Needed to Achieve Consistent Performance

Presenter: Susan Guswa, Wastewater Practice Leader - Woodard & Curran

SAPPHIRE

Total phosphorus removal has long been required by many water resource recovery facilities (WRRF) that discharge to inland waters. In recent years, more and more facilities are being required to meet effluent total phosphorus limits of 0.1 mg/L or lower. Meeting these limits typically requires a balance of capital improvements, O&M costs and an investment of human resources. This presentation will provide an overview of how WRRFs can implement proven and evolving technologies to provide a balance between these investments. The presentation will include case studies that have implemented combinations of technologies and operational measures to achieve consistent performance.

9:30 am - 10:00 am

LAB

The Importance of Proper Sample Collection

Presenter: Justin Monroe, Environmental Chemist, MWRDGC

PLAZA C/D

There are several users of data provided by a wastewater treatment facility. With so many depending on reliable data, it is paramount that the results of analyses are accurate and precise. The collection of samples has a significant impact on the accuracy and precision of analytical results. Sample contamination, improper containers/labels, and lack of documentation are potential causes for inaccurate data. Implications of using inaccurate data can range from improper plant process adjustments to receipt of noncompliance fines from the Environmental Protection Agency. This informative presentation will be of value to entry level treatment works employees as a training tool.

WET

Green Infrastructure and Its Economic Impacts

Presenter: Paul E. Hurley IV, EIT, ENV SP, Greeley & Hansen

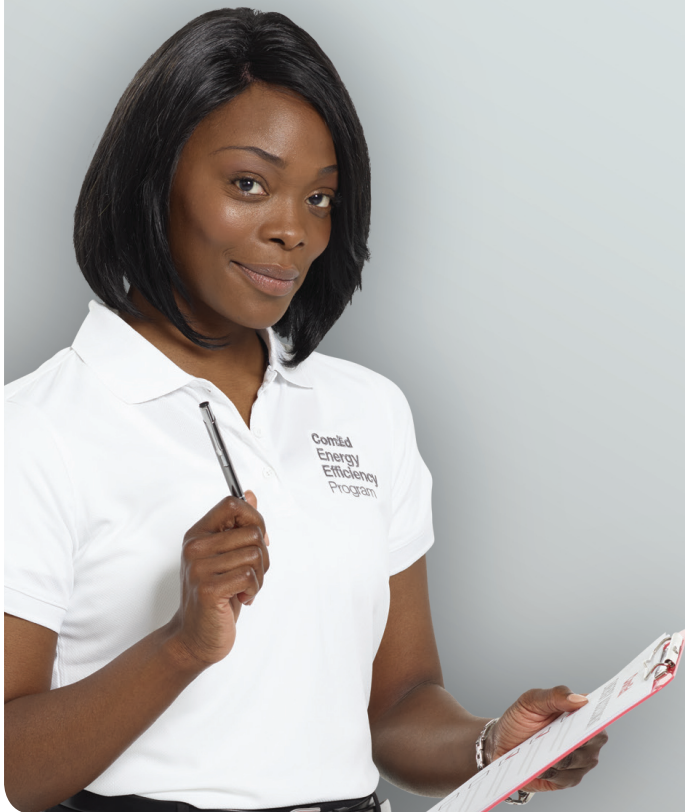
RUBY

Green Infrastructure is a growing trend in stormwater management, and while many are familiar with the concept, the details are still obscure. The term Green Infrastructure (GI) describes structures or practices that manage stormwater using natural processes to treat and control runoff. While these can be aesthetically pleasing and energy saving, an understanding of GI principles is crucial to the value added engineering that creates healthy urban landscapes. The goal of this presentation is to provide background on common GI installations and practices, assess how effective they are, and discuss the common challenges that municipalities face when incorporating GI.



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TUESDAY, FEBRUARY 12

ROOM

NRR1

Phosphorus Influent Reduction Measures

Presenter: Chris DeSilva, Professional Engineer - Greeley & Hansen

SAPPHIRE

Water resources recovery facilities (WRRFs) are seeking cost effective approaches to reduce their total phosphorus effluent concentrations. Effluent phosphorus levels can be reduced by using phosphorus removal technologies at the WRRFs and by using influent reduction measures. A key step in reducing influent phosphorus load is understanding the current phosphorus levels of these sources and implications on phosphorus reduction of proposed reduction measures. Quantifying the impacts and implementing influent reduction measures can be a challenging task, but a potentially cost effective component of an overall phosphorus removal strategy.

9:00 am - Noon

WKSP

Safety Workshop

PLAZA A/B

10:30 am - 11:00 am

LAB

Ammonia Measurement by Ion Selective Electrode

Presenter: Eric Link, LabtronX

PLAZA C/D

WET

Intelligent Odor Warning System at an MWRD Reservoir

Presenters: Nina Kshetry, President - Ensaras, Inc. and John Mulrow, Ph.D. Candidate in Environmental Engineering - University of Illinois at Chicago

RUBY

Data analytics and Intelligent Water Systems are poised to play major roles in addressing operational challenges of utilities in the future. We will present our work on using advanced analytics combined with artificial intelligence for developing an advanced warning system for odors at the Metropolitan Water Reclamation District of Greater Chicago's (MWRDGC) Thornton Composite Reservoir (TCR). More broadly, we will summarize some key steps wastewater utilities can take to better position themselves for readily deploying advanced analytics and intelligent water systems.

NRR1

Doubling Down on Phosphorus?

Presenter: Rachel M. Lee, P.E., Sales Manager - Ostara Nutrient Recovery Technologies, Inc.

SAPPHIRE

The Madison Metropolitan Sewerage District (MMSD) installed Ostara nutrient recovery system including Pearl and WASSTRIP at their Nine Springs plant in 2013. The system started up well and achieved several benefits for MMSD; however, the phosphorus recovery for the system fell short of expectations. In recent years, Ostara and MMSD collaboratively tested several strategies with goals of improving recovery and reducing fines loss. Efforts have yielded twice as much phosphorus recovery increasing the average monthly Crystal Green production from 1 ton/day to 2 tons/day and they have reduced the fines loss from around 60 percent to less than 30 percent.

11:00 am - 11:30 am

LAB

Understanding Oil and Grease

Presenter: David Smith, Technical Director, Environmental Express

PLAZA C/D

Oil and Grease is a fairly common parameter for environmental compliance monitoring. As a method defined analyte it is limited in the amount of flexibility given to adapt the analysis to various circumstances. Understanding what is happening during the analysis will help the analyst make better decisions in working with difficult samples and deciding how to best approach the procedure. We will discuss the two most common variations, liquid-liquid extraction and solid phase extraction, as well as the advantages and disadvantages of each method.

WET

Biological High-Rate Clarification with Use of Existing SBR

Presenter: Paul Wood, Associate - Lockwood, Andrews & Newnam, Inc.

RUBY

The City of McHenry, IL recently installed a Biological High-Rate Clarifier system to treat wet weather flows up to 10 MGD for BOD and TSS removal. The plant also installed an SBR system to treat everyday flow. The design was set up so that one of the SBR basins would automatically become the biological contact tank for the Biological High-Rate Clarifier during a wet weather, high-flow event. By having fresh process water in the largest basin in the system, the start-up time of the Clarifier is reduced by roughly 75% during a rain event.



IWPC 2019 Mobile Session

TUESDAY, February 12, 2019

10:30 - Noon

EXHIBIT HALL

- | | | |
|------------------|------------------|--|
| ■ Paul Yost | Xylem Flygt | Intelligent Wastewater Pump - The New Pump Industry Breakthrough |
| ■ Cassie Carroll | U of I | Energy Assessment Program |
| ■ Don Kramer | Energenecs | Aeration Efficiency |
| ■ Jordan Lind | CLEARAS | Advanced Biological Nutrient Recovery (ABNR) Technology |
| ■ Ross McArthur | Sonar Technology | 3D Underwater Mapping of Lagoons |

NRR1

Tons of Green: Algae-Based Nutrient Recovery

Presenter: Leo Kucek, Project Engineer - Applied Technologies, inc.

Nutrient-rich surface waters across our region teem with uncontrolled algae. However, algae can also be harnessed to drive a “green” economic and environmental future via nutrient recovery. To meet ultra-low phosphorus limits, two facilities evaluated various technologies, including algae-based advanced biological nutrient recovery (ABNR). ABNR pilot tests confirmed that these systems could consistently meet effluent phosphorus concentrations below the detection limit (0.02 mg/L). At each facility (2 and 5.5 mgd), these systems are expected to generate millions in annual revenues, offering a sustainable waste recovery process. Results will be presented from two facility plans wherein algae-based ABNR technology was evaluated.

SAPPHIRE

11:30 am - 12:00 pm

LAB

Quality Assurance in the Lab

Presenters: Cora Fickinger, Quality Training Officer, Teklab, Inc. and Alicia VerDuin, Inorganics Technical Manager and Microbiological Department Supervisor - Teklab, Inc.

Quality Assurance is obtained by implementing the quality controls necessary to provide reliable data. The QC requirements of some of the basic wastewater testing methods will be discussed, including where to find them and how to use them to support the validity of your lab results.

PLAZA C/D

WET

Hurricane Harvey: Damage and Recovery at the Conroe Southwest Regional WWTP

Presenter: Greg Hall, Wastewater Superintendent, City of Conroe, TX

Hurricane Harvey hit the Texas coast on August 26, 2016. The Conroe Southwest Regional Wastewater Treatment Plant (WWTP) lies south of Lake Conroe, which released water at a record 79,000 cfs. These releases swelled the downstream San Jacinto river and overtopped the levee that normally protects the Southwest Regional Plant, causing staff to be air lifted out on August 28, 2017. Through heroic efforts of the City staff, support by local vendors and repair shops, the plant was able to return to operation on August 3, 2017 three days later, and meeting permit on August 4, 2017.

RUBY

NRR1

Enabling Fully Integrated Wastewater Resource Recovery

Presenter: Jordan Lind, CEO, Clearas Water Recovery

Wastewater resource recovery lies at the heart of the global circular economy. Increasing pressure on freshwater resources for communities and industries, as well as demand for the recovery of additional value from generated waste streams benefiting the bottom-lines of cities and manufacturers, requires the advent of new biological technologies capable of performing those tasks at unprecedented levels. South Davis Sewer District is paving the way to the future with their implementation of Advanced Biological Nutrient Recovery (ABNR) technology under construction as the first commercially integrated resource recovery facility of its kind in the world. CLEARAS Water Recovery has pioneered the most effective biomechanical platform in commercial operation to date for industrial and municipal wastewater treatment, using advanced information management systems, sensor arrays, and the naturally aggressive nutrient uptake properties of microalgae to effectively remove 99.9% of excess phosphorus, nitrogen and other common contaminants from wastewater without the need for costly chemicals or acres of open raceways. The South Davis full-scale 4 MGD ABNR installation and ground-breaking was announced in May 2017, in conjunction with the construction of a regional food waste-to-energy project set to produce an amazing energy footprint offset for the district and their ratepayers. In addition to their energy savings, the District is recycling the CO₂ produced from this food waste to energy or combined heat and power (CHP) operation as an essential input to their ABNR platform. South Davis and CLEARAS are a case study in the economic benefits in transitioning from traditional, linear wastewater treatment to true resource recovery facilities for businesses, communities, and the world. Once fully operational, it is expected that South Davis will produce energy savings of nearly 734 megawatt hours with 1,100 tons of dry-weight biomass per year for use in downstream industries as varied as soil enhancement to bioplastics to protein supplements.

SAPPHIRE

1:00 pm - 1:30 pm

PRET

2018 US EPA Pretreatment Training Highlights and Update

Presenter: Eduardo Gasca, Senior Environmental Engineer - St. John-Mittelhauser & Associates, Inc.

In 2018, the US Environmental Protection Agency (US EPA) sponsored a series of two-day Clean Water Act NPDES Pretreatment Training. One of this training was offered in Indiana at the Indiana Government Center on July 18-19, 2018. The main target audience was municipality representatives in charge of the Publicly Owned Treatment Works (POTW) or entity that normally enforce the Pretreatment regulations to those Industrial Users that discharge their effluent to municipal wastewater sewer and wastewater treatment works. The purpose of this presentation is to help disseminate the information presented during this training session and is a summary of the 2-day training. It includes a general overview of the Pretreatment program, regulations and standards; approaches to develop industrial user inventories and industrial users classification; resources available for industrial user inspections, reporting requirements; regulating Non-Categorical Significant Industrial Users; common deficiencies of Sewer Use Ordinances (as observed by US EPA), Enforcement Response (as presented by US EPA); when Significant Non-Compliance is reached by IUs, and constituents or parameters of concern that US EPA is studying and evaluating to include in the Pretreatment program.

PLAZA A/B

ELEC

Customizing Your Energy Mix: Can Solar Improve Plant Operations?

Presenters: William Graves - Sol Systems and Sandy Bernard, Process Engineer, American Bottoms Wastewater Treatment Plant

With the implementation of Illinois' recently passed Future Energy Jobs Act (FEJA), solar energy is rising rapidly as a preferred source of power in Illinois. Given the potential for reduced energy costs, utilities and plant operators are re-evaluating their energy mixes. This session is designed to provide plant operators with a case study containing resources and information needed to understand what solar options are available in Illinois, the impact on financial and sustainability goals, and notable challenges when pursuing solar energy.

PLAZA C/D

NRR2

Thinking Differently: A Synergistic Solution for Nutrient Removal

Presenter: Ted R. Bluver, Civil Engineer - Greeley & Hansen

As nutrient limits begin to take shape in Illinois, developing cost-effective solutions to satisfy new regulatory constraints can be challenging. The Greater Peoria Sanitary District proactively completed planning, design, construction, and commissioning of nutrient removal improvements. The thoughtful approach presented in this case study is useful to municipalities as it shows how nutrient removal improvements can be used as an opportunity to simultaneously reduce operational costs through plant-wide energy savings, address other operational challenges, and supplement the capital costs for the improvements with energy efficiency grant funding and public-private partnership.

SAPPHIRE

COLL

Implementation of the Infiltration / Inflow Control Program

Presenter: Michael Zigulich, Associate Civil Engineer - MWRDGC

This presentation will focus on the requirements and progress made in the Short Term Program of the Metropolitan Water Reclamation District of Greater Chicago's Infiltration / Inflow Control Program (IICP). IICP provides a framework for asset management of separate sewer systems with the goals of preventing sanitary sewer overflows and basement backups, complying with the District's NPDES permits, including federal, state, and local regulations, and minimizing extraneous flows transported to the District's facilities due to defective system components or illegal connections.

RUBY

1:30 pm - 2:00 pm

PRET

Identifying Industrial Users Within Your Service Area

Presenter: Nichole Schaeffer, Environmental Department Manager - Baxter & Woodman, Inc.

The USEPA National Pretreatment Program Headquarters gave an estimate in May 2017 at the National Association of Clean Water Agencies (NACWA) National Pretreatment Conference that over 500 categorical industrial users (CIU) in Illinois are operating without control mechanisms and discharging unregulated categorical process wastewater to treatment facilities (WWTF). It is crucial for wastewater treatment facilities with and without pretreatment programs understand how to locate and identify industrial and commercial users in order to survey and evaluate the industrial processes, liquid chemical storage for spill potential assessment, and waste stream generation, pretreatment, discharge and or disposal.

PLAZA A/B

ELEC

Energy and Cost Saving Opportunities for Wastewater Processes

Presenters: Ryan Siegel, Energy Engineer - Smart Energy Design Assistance Center (SEDAC) and Chad Kruse, Manager, Office of Energy at Illinois Environmental Protection Agency

Energy use can significantly impact local government's annual operating budgets, especially for local governments that own and operate wastewater treatment facilities. Energy efficiency improvements can save energy and money, and provide other economic and environmental benefits for local governments. This session will focus on energy-saving opportunities at wastewater facilities, highlighting case examples from the Illinois EPA's Wastewater Treatment Plant Assessment Program, and discussing ways to overcome common implementation barriers. Available technical support and funding opportunities across Illinois will be featured to help facilities achieve energy reduction and cost-savings.

PLAZA C/D

NRR2

S2EBPR Configuration for Phosphorus Removal at DuPage County

Presenters: Mark Halm, Vice President - Walter E. Deuchler Associates, Inc. and Jay Dahlberg, Chief Operator, DuPage County Department of Public Works

Walter E. Deuchler Associates, Inc. was retained to prepare a 'Phosphorus Removal Feasibility Plan and Discharge Optimization Plan' for the DuPage County Woodridge Greene Valley and Knollwood WWTP. The feasibility study became the basis for the design of the Knollwood WWTP. The waste was characterized and jar testing conducted to determine metal salt chemical dosages. A calibrated process model was developed and the process performance of several alternatives were evaluated. The biological process implemented at Knollwood can be configured for S2EBPR SSR, or an AO process. Configuration and performance data will be presented from startup and operation.

SAPPHIRE

COLL

Calumet Tunnel and Reservoir Plan History and Impact

Presenter: Dylan Cooney, PE, Associate Civil Engineer, MWRDGC

The Metropolitan Water Reclamation District of Greater Chicago (District) adopted the Tunnel and Reservoir Plan (TARP) over 40 years ago to reduce pollution and flooding from combined sewer overflows (CSOs) in the Chicagoland area. The Calumet TARP System serving the south side of Chicago and suburbs was completed in 2015 when the Thornton Reservoir was placed into operation. The presentation will describe the Calumet TARP system and its impact on the community, including reductions in CSOs and flooding protection for over 182,000 structures within its service area.

RUBY

TUESDAY, FEBRUARY 12

ROOM

2:00 pm - 2:30 pm

PRET

A PCI Tutorial: Everything's Going to Be All Right

Presenter: Karen K. Clementi, Vice President - Deuchler Environmental, Inc.

Is your facility prepared for a U.S. EPA Pretreatment Compliance Inspection (PCI)? Pretreatment compliance is a renewed priority for the U.S. EPA and they will be increasing both the number and frequency of PCIs in Illinois. In June 2018, the Fox Metro Water Reclamation District (FMWRD) had their first PCI in 15 years. This presentation will focus on the recent experience during FMWRD's PCI and the U.S. EPA's specific priorities. The presentation will provide guidance on Pre-Inspection Paperwork; Format and Procedures; Interviews; Site Visits; File Review Preparation; Lessons Learned; and Tips for a Successful PCI.

PLAZA A/B

ELEC

Choosing the Right Blower Technology

Presenter: Travis L. McGrath, Product Manager - Blowers - Atlas Copco

For several decades, lobe and multistage blowers had been the tried and true blower technologies for wastewater treatment plants, and until recently there had been no major developments in this portion of the wastewater treatment process. However, over the past 15 years the demand for increased energy efficiency has led to major advances in the available equipment to provide aeration. The primary technologies developed over the last 15 years have been single-stage integrally geared centrifugal blowers, positive displacement screw blowers, and high speed direct-drive centrifugal blowers. These technologies can greatly reduce the power consumption and electricity costs of a plant.

PLAZA C/D

NRR2

Achieving Stable EBPR at Gary Sanitary District

Presenter: Anthony Giovannone, Environmental Engineer - CDM Smith

The Gary Sanitary District operates a 60 MGD design average daily flow WWTP with an effluent total phosphorus limit that is based on a percentage removal of the influent phosphorus. Biological phosphorus removal was not reliable as influent carbon was insufficient and operational conditions were not ideal for PAO growth. GSD moved forward with a HSW receiving program at the WWTP, increasing available influent carbon for EBPR and made significant operational improvement. GSD eliminated chemical use for phosphorus removal and saving \$36,000 annually while consistently meeting their effluent phosphorus limit using EBPR and without any upfront capital costs.

SAPPHIRE

COLL

Keep Out the Rain - Kansas City's Private I/I Program

Presenter: Sara Goebel, Staff Civil Engineer - Burns and McDonnell Engineering

The Private I&I Reduction Program taking place in Kansas City, Missouri includes removing rainwater from the Sanitary System. Kansas City's "Keep out the Rain" program (KOTR) has completed its second year and is well into its third year. We'll look at the set up of the Program, sources we are removing, technologies we are using for collect/manage data, also the source removal process including coordination with pre-qualified plumbers and the agreed upon unit prices. We'll also be looking at the tremendous success in cost effectiveness, staying well under the \$1.15/gpd removal goal of the program.

RUBY

2:30 pm - 3:00 pm

PRET

Conducting Pretreatment Site Inspections

Presenter: Lisa G. Lucht - Baxter and Woodman

Unauthorized wastewater discharge from industries and other non-domestic sources can cause significant problems at wastewater treatment plants, including hazardous conditions, interference of operations, and pass-through of pollutants. Site inspections are essential to fully understand an industry's process and to correctly classify an industry for both approved and non-approved pretreatment programs. This talk's focus will present guidance from the 2017 "USEPA Industrial User Inspection and Sampling Manual for POTWs", and suggestions for key questions to ask of several industrial user types for classification and confirmation of compliance.

PLAZA A/B

ELEC

Managing the Migration of Outdated Programmable Logic Controllers

Presenter: Thomas Powell, Instrumentation and Controls Group Head/Associate - Greeley & Hansen

Water and Wastewater treatment plants require many types of monitoring and control systems for automation and equipment monitoring. How systems work together and communicate defines project success. As these systems age, performance can diminish and repair costs can skyrocket. Many times the process control system is either left as originally installed or modified through multiple contracts resulting in either a hybrid system of multiple vintages and manufacturers. The method of replacement migration an outdated system can present operational, construction, and engineering challenges. An engineered migration can improve process system operation, energy efficiency, and improve information available to operators.

PLAZA C/D

NRR2

Taking Biological Process Controls from Manual to Reactive to Predictive

Presenter: Leon Downing, PhD., PE, Principal Process and Innovation Leader, Black & Veatch

Biological nutrient removal (BNR) coupled with ammonium based airflow control (ABAC) provides a process configuration and control to enhance nutrient removal, provide process stability, provide selective biological pressures and aeration energy savings. This presentation will provide 12 months of startup data related to process troubleshooting, controls optimization, and performance summary from a 189 mgd facility in Texas.

SAPPHIRE

TUESDAY, FEBRUARY 12

ROOM

COLL

Creating Efficiencies Using Mobile GIS and Operational Dashboards for Wastewater Systems

Presenter: Kyle Engelking, GIS Specialist - Symbiont

RUBY

The margin for efficient and precise record keeping is razor thin today as we are able to create and obtain data at the tip of our fingers 24/7. This has forced many utility operators to turn to a shared Geographical Information System (GIS) to help them maintain and improve their asset management systems and record keeping. This presentation will focus on several small to mid-sized wastewater utilities and their approach to using a GIS to maintain their wastewater infrastructure assets and aid in their various reporting activities.

4:00 pm - 4:30 pm

ENRG

Upgrades to Secondary Treatment System to Increase Process Efficiency & Decrease Operating Costs

Presenter: Andrew Deitchman, Senior Project Manager - Walter E. Deuchler Associates, Inc.

PLAZA A/B

Walter E. Deuchler Associates, Inc. collaborated with Fox Metro Water Reclamation District to improve the single stage nitrification activated sludge process to increase plant efficiency and prepare the process for future conversion to biological phosphorus removal. The improvements included air main replacement, process instrumentation addition, blower replacement, and implementation of a dissolved oxygen control system. Significant energy savings are obtained as a result of the blower replacement and air valve control scheme optimization. Data trends show the DO control curves tracking the DO setpoints. The 20-year present worth of the power savings realized by the project is approx. \$3.38M.

ELEC

GreenBush CSO Tank- Electrical Design Innovation

Presenter: Nitika Yadav, Electrical Engineer - Greeley & Hansen and Jay Bielanski, Associate, Greeley & Hansen

PLAZA C/D

The Greenbush CSO Storage Tank project provided a spark to transform the city's underutilized area and serve as a spring board for the redevelopment of the site. An electrical building was constructed to house electrical and control components. Electrical and Control Design considerations and challenges included: electric utility coordination, NFPA 820 compliance, maintenance considerations, flood risk mitigation, security, aesthetics, safety and complete automation. The Project design involved making sure the top of the tank has minimum or no electrical equipment above grade. The presentation will discuss the innovative solutions implemented for Electrical design using the project as case study.

NRR2

A Shortcut Nitrogen Removal Process for a Wisconsin WWTP

Presenters: Bradley Lake, Project Manager - Strand Associates, Inc. and Troy Stinson, Senior Associate/Project Manager, Strand Associates, Inc.

SAPPHIRE

The City of Fond du Lac, Wisconsin Regional Wastewater Treatment Facility is a 9.84 MGD (design average) conventional activated sludge plant. This facility co-digests high strength waste with excess biosolids in its temperature phased anaerobic digestion process (TPAD) to generate energy in a biogas engine. However, digestion of the high-strength waste results in large ammonia recycle loading back to the aeration tanks from the centrate generated by the centrifuge dewatering process. This facility will soon start-up a shortcut nitrogen removal process which reduces ammonia in the centrate prior to recycling to the aeration system.

COLL

Reducing Collection System O&M Costs by Eliminating Lift Stations with Deep Gravity Sewers

Presenter: Jordon Thomas-Harris, Project Engineer - Lockwood, Andrews & Newnam, Inc.

RUBY

Sewage treatment services on the far west side of Houston are currently contracted with the Chelford City Municipal Utility District at an annual cost of \$600k. After performing a detailed life cycle cost analysis (LCCA) of this arrangement, the City initiated the Chelford City Diversion project to divert flow to their Upper Brays Bayou WWTP, which will eliminate annual contract costs, utilize unused capacity at the Brays Bayou WWTP, and reduce O&M costs of operating nine lift stations. This presentation will discuss the LCCA evaluation and the design and construction challenges of the selected project.

4:30 pm - 5:00 pm

ENRG

CHP and Solar Systems in Wastewater Treatment

Presenters: Jorge Carvajal, Mechanical Engineer - Greeley & Hansen and Nikita Yadav, Electrical and Controls Engineer, Greeley & Hansen

PLAZA A/B

The City of Lafayette, Indiana, through their program Lafayette Renew, has embarked on a mission to reduce energy consumption in their wastewater treatment plant. The plant understands that while a portion of digester gas is currently used for digester and building heating, there are opportunities to further optimize digester and natural gas utilization by improving solids and waste handling processes. Additionally, the plant has long envisioned the installation of a solar field to accomplish their long-term goal of energy and carbon neutrality. Greeley and Hansen studied different scenarios and technologies to help Lafayette Renew accomplish their immediate and future goals.

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ELEC

Power in Planning - Electrical Upgrades at WSSC's Piscataway WRRF

Presenter: Jay Bielanski, Associate - Greeley & Hansen

PLAZA C/D

Wastewater facilities are in a constant state of change as improvements are implemented, as these improvements are implemented they compete for various resources. The competition for one resource is often overlooked, but is essential: a continuous source of reliable electrical power. Without reliable power critical wastewater treatment processes can fail and cause costly service disruptions. This paper will look at the key electrical elements that should be considered when implementing any infrastructure improvement and will present a case study discussing the challenges during the Washington Suburban Sanitary Commission's (WSSC) Piscataway WRRF Electrical Upgrades Project.

NRR2

Fermenters and Sidestream Phosphorus Treatment: Process Design and Practical Considerations

Presenters: Jennifer Loconsole, Civil Engineer - Black & Veatch and Leon Downing, Principal Process and Innovation Leader, Black & Veatch

SAPPHIRE

The Fox River Water Reclamation District (FRWRD) in Elgin, IL owns and operates three water reclamation facilities (WRFs), the Albin D. Pagorski WRF (ADP WRF), the North WRF (NWRF) and the West WRF (WWRF), providing wastewater treatment services to 180,000 people within the communities of Elgin, South Elgin, West Dundee and surrounding areas in Kane and Cook Counties, including a portion of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). The ADP WRF provides regional biosolids management for the three WRFs. FRWRD received NPDES permits that require compliance with 1.0 mg/L total phosphorus as an annual average. The District's Phosphorus Removal Feasibility Report concluded biological phosphorus removal (bio-P) to be the most cost-effective method of managing phosphorus at the three WRFs. The West WRF is already configured for biological phosphorus and nitrogen removal in a five-stage Bardenpho Process. This presentation will provide an overview of the biological phosphorus removal processes proposed to be implemented at the three WRFs, and provide details on practical design considerations required to enable the S2EBPR process while allowing process operations flexibility.

COLL

Under the River and Through the Pipelines

Presenter: Greg Vaughn, Senior Project Manager, LAN, Inc.

RUBY

This case study explores the major challenges faced during the design of a 66-inch interceptor for the City of Fort Worth within a city owned golf course. One challenge encountered was the design of a two-barrel inverted siphon with a wide range of flows that also minimized at grade impacts. Another major design challenge was addressing a conflict between two gas pipelines and the proposed interceptor profile. This was accomplished by splitting portions of the interceptor into reduced sized parallel lines at each pipeline crossing and threading the needle between the pipelines.

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WEDNESDAY, FEBRUARY 13		ROOM
9:00 am – 9:30 am		
OPS1	Do You Need a Computerized Maintenance Management System (CMMS)? Presenter: Bruce Butler, UCSD Maintenance/Purchasing Program and Strategies - Urbana & Champaign Sanitary District The Urbana & Champaign Sanitary District (UCSD) has two treatment plants, twenty eight lift stations, ninety five miles of sewers, and 2200 manholes to maintain with a staff of twenty and a support staff of two. These facilities and staff serve over 150,000 customers. UCSD incorporated the use of a centralized purchasing system and Computerized Maintenance Management System (CMMS) in the mid 1980s. Although the phrase Asset Management was not a phrase commonly used back then, elements of a modern Asset Management Plan were included in the CMMS. See what UCSD does to make this system work, along with some of the many intangibles the District has to work around, and well as the always interesting lessons learned the hard way.	RUBY
PLAN	Intensification: When Does it Make Cents or Sense? A Tale of Three Case Studies Presenter: Matt Sokolowski, Engineer - Carollo Engineers, Inc. Every year technology shrinks the world, allowing us to cram more capacity and functionality into smaller devices. The wastewater treatment industry is no different. New technologies allow us to intensify treatment, accomplishing higher performance within the existing footprint of an aeration basin or clarifier. However, like any new technology, there are both advantages and disadvantages. This presentation will review case studies of different intensification technologies and will discuss the specific advantages (when compared to conventional treatment) that led each agency to pursue or not pursue intensification. Will intensification make sense for your next facility upgrade?	PLAZA A/B
9:00 am – 10:00 am		
SHED1	Illinois Water Quality Standards Update Presenter: Brian Koch, IEPA Brian Koch has been working for the Illinois EPA for 13 years. He works in the Water Quality Standards section of the Division of Water Pollution Control. He has a B.A. and M.S. in Zoology from Southern Illinois University Carbondale, with specialization in fish biology and aquatic toxicology. His primary responsibilities at the Agency include developing water quality standards, 316(a) and (b) review, whole effluent toxicity review, and management of the fish contaminant monitoring program.	SAPPHIRE
9:30 am – 10:00 am		
OPS1	Let the Water Flow: Startup of the New Aerated Grit Facility Presenters: Ryan Christopher, Associate - Greeley & Hansen and Paul O'Brien, Principal Civil Engineer - MWRDGC The Imhoff Replacement Project was implemented to upgrade the primary and preliminary treatment at the Stickney WRP. The replacement project included demolition of existing Skimming and Imhoff Tanks and the installation of a new Aerated Grit Facility and nine Primary Settling Tanks capable of treating 720 MGD. The startup of a system this large requires careful planning in order to not affect the overall treatment that is ongoing and provide Maintenance and Operation staff the ability to work out challenges with the new system. This presentation will discuss the lessons learned from the startup of the 720 MGD project.	RUBY
PLAN	Selection of the Appropriate SBR Process Within Existing Site Constraints Presenters: Todd Peek, Water Infrastructure Services Manager - Illinois - Thouvenot, Wade & Moerchen, Inc. and Chris Bergmann, Water Infrastructure Services Leader, Thouvenot, Wade & Moerchen, Inc. Ensuring that treatment plants are continuing to meet evolving effluent standards can be challenging and costly. Upgrades must not only consider current and future limits but must also ensure continuity of operations throughout construction. The selection of a treatment process that provides proper treatment while being seamlessly incorporated into the existing plant confines requires significant planning. TWM will present case studies for various plants in which SBR technology was used to meet these effluent limits. Each plant presented unique challenges and involved some variation on the technology, ensuring operator comfort with maintenance requirements and allowing continued operation during construction.	PLAZA A/B
10:30 am – 11:00 am		
SHED1	Illinois Nonpoint Source Program Update Presenter: Chris Davis, IEPA Chris Davis has been a project manager in the Nonpoint Source Unit, Bureau of Water, Illinois EPA for 25 years. Her Section 319 projects include watershed plan development and implementation in both urban and rural areas of the state. Prior to Illinois EPA, Chris worked in central Illinois as a Resource Conservationist for 3 soil and water conservation districts.	SAPPHIRE
OPS1	Ultraviolet Disinfection: Tips, Tricks and Considerations Presenter: Paul Wood, Associate - Lockwood, Andrews & Newnam, Inc. Ultraviolet Disinfection is a reliable technology. The current standards for application of this technology are well documented but can be somewhat confusing. NWRI guidelines are directed at reuse and discharge standards, such as the Ten State Standards have not been updated for more than 14 years. The WEF publication Ultraviolet Disinfection for Wastewater provides guidance and rationale for implementation. A case study of a current design will be provided, which shows historical plant data analyzed, and results of a collimated beam test and considerations to determine system sizing. Reuse issues will also be covered.	RUBY

WEDNESDAY, FEBRUARY 13

ROOM

PLAN

BAF vs. CAS: An Evaluation of Biological Aerated Filtration

Presenter: Kam Law, Civil Engineer - Greeley & Hansen

PLAZA A/B

The Evansville Water & Sewer Utility's (EWSU) West WWTP utilizes a unique combination of conventional activated sludge (CAS) and biological aerated filtration (BAF) for secondary treatment. BAF replaces aeration tanks and final settling tanks used in CAS, and contains the entire secondary treatment process within a single, compact structure using media-filled cells for treatment. Per EWSU's consent decree requirement which increases future peak influent capacity, an analysis was performed to evaluate the options of expanding the BAF and/or CAS system. Due to smaller relative footprint and increased loading capacity, BAF was selected for the expansion, saving millions for EWSU.

11:00 am - 11:30 am

SHED1

Illinois TMDL Program Update

Presenter: Abel Haile, IEPA

SAPPHIRE

Abel Haile is the Planning (TMDL) Unit Manager in the Bureau of Water-Watershed Management Section. He has been with Watershed Management Section for almost five years working on TMDL Watershed projects in Illinois. Prior to joining Watershed Management Section, he was with the BOW/Permit Section- Northern Municipal Unit as a permit engineer and worked on NPDES Permits, Facility Plans, and wastewater treatment/transporting construction permit applications for over 23 years.

OPS1

Chemical Phosphorus Removal - Design and Operation Considerations

Presenter: Stephen Dennison, Senior Project Manager - Engineering Enterprises, Inc.

RUBY

Chemical Phosphorus Removal (Chem-P) is often required for Wastewater Treatment Facilities to consistently meet their respective permit limit. However, Chem-P systems have often turned into operations and maintenance headaches for Operators. This presentation will provide an overview of design considerations for Chem-P systems at Wastewater Treatment Facilities, including regulatory requirements, chemical options, equipment sizing, and chemical injection (discharge) point options. Practical considerations will be presented based upon lessons learned from existing systems. Furthermore, recent case studies for Chem-P systems at the Carpentersville, IL WWTF (Ferric Chloride) and Huntley, IL East WWTF (Aluminum Sulfate) will be highlighted.

PLAN

Odor Control Studies at Egan and O'Brien Water Reclamation Plants

Presenter: Eric Compton, Environmental Engineer - CDM Smith

PLAZA A/B

Odor control studies at the Metropolitan Water Reclamation District Egan and O'Brien Water Reclamation Plants are being completed - including conceptual design of odor treatment facilities. Successful odor control requires an approach that considers containment, conveyance, and treatment. To address the broader aspects of odor control, an overall project approach was developed that included multiple phases and considerations. The primary goal of the project is to reduce odors at the two plants by focusing on known offensive areas/processes, employing technologically proven, cost-effective, and maintenance and operation friendly odor treatment/minimization approaches.

11:30 am - 12:00 pm

SHED1

Chloride Variance: Time-Limited Water Quality Standard Update

Presenter: Lindsay Birt, Huff & Huff/GZA

SAPPHIRE

Dr. Lindsay Birt, Assistant Project Manager at Huff & Huff, a subsidiary of GZA, Inc, has extensive experience in water quality monitoring and modeling, storm water management, sustainable design and performance assessments, and watershed management. Dr. Birt completed a Ph.D. in Agricultural and Biological Engineering from Purdue University with an emphasis in Environmental & Natural Resources Engineering. She holds a M.S. and B.S. in Biological and Agricultural Engineering from Texas A&M University.

PLAN

BioWin modeling to Develop BNR Process Configuration to meet NPDES Permit

Presenter: Bulbul Ahmed, Environmental Engineer/Scientist - Stanley Consultants, Inc.

PLAZA A/B

In general, the BioWin simulator is widely used to model wastewater treatment options involving physical, chemical and biological processes. BioWin is an excellent simulation tool for comparing secondary treatment options and modeling nutrient (N, P) removal efficiency of biological nutrient removal (BNR) processes. BioWin was used to develop BNR process configuration for a wastewater resource recovery facility (WRRF) expansion project challenged with limited infrastructure and capital availability. This presentation will discuss how BioWin was used to finalize the process configuration and reactor size. Additionally, steady-state simulation results for the final design will be presented.

OPS1

Process Monitoring and Control for Biological Phosphorus Removal

Presenter: Mark J. Halm, Vice President - Walter E. Deuchler Associates, Inc.

RUBY

Walter E. Deuchler Associates, Inc. (WEDA) has completed several phosphorus removal feasibility studies, pilot and full-scale designs of BPR facilities in Illinois ranging from 2.44 MGD to 42 MGD. While useful, desktop models of biological phosphorus removal may not translate into successful designs and as a result there may be operational and compliance issues. The presentation will address waste characterization for design, flexibility of process design, monitoring and control. Data will be presented including design rule-of-thumb ratios for successful treatment versus actual performance. Environmental monitoring: ORP, and nitrate concentrations will be presented showing the impact of these conditions on operations.

WEDNESDAY, FEBRUARY 13

ROOM

1:00 pm - 1:30 pm

SHED2

Illinois EPA Permits Section Update

Presenter: Brant Fleming, IEPA Permits Section

SAPPHIRE

Brant Fleming has been working in the Illinois EPA Section for over 10 years. He is a 2006 graduate of Southern Illinois University – Carbondale obtaining a B.S. in Civil Engineering, and a registered Professional Engineer in the State of Illinois. He is responsible for reviewing municipal wastewater construction and operation permits, and NPDES discharge permits.

1:30 pm - 2:00 pm

SHED2

Illinois MS4 Permit Implementation Round Table

Moderator: Dan Bounds, Baxter & Woodman

SAPPHIRE

Dan Bounds is the Infrastructure Department Manager for Baxter & Woodman and has a BS in Civil Engineering from the U. of Illinois. Dan is a recognized local and national leader in MS4 program development and implementation. He has authored MS4 implementation manuals and BMP handbooks for numerous municipal agencies, and has assisted numerous public agencies with prioritizing program elements for the best use of available resources.

OPS2

Boosting Conservation and Efficiency for Water and Wastewater

Presenter: Bob Kisler, Sales Manager - Gardner Denver

RUBY

High power usage, rising costs, and external pressure to boost conservation and efficiency are pushing wastewater treatment plants to find innovative solutions to reduce power consumption and cut costs. Multistage centrifugal blowers offer opportunities to reduce costs and energy consumption by adjusting speed and flow rate to meet demand. This can be done manually using a butterfly valve to throttle the inlet. To move away from traditional butterfly valve throttling, you can replace the valve with a VFD (Variable Frequency Drive). As Newnan Utilities discovered at its Wahoo Creek Facility, Variable Frequency Drive (VFD) technology can be extremely effective at reducing operating costs while boosting performance and efficiency. By utilizing advanced VFD technology, Newnan Utilities was able to adapt the speed of their blowers to the constantly fluctuating load requirements, minimizing energy consumption, while allowing the plant to maintain its level of award winning focus on performance and environmental efficiency. In this paper, we compare VFD technology with manual inlet valve throttling, present estimated energy and cost savings, discuss ancillary equipment that is required to successful retrofit existing aeration blowers to accommodate VFDs, and review a case study on that demonstrates successful application of advanced VFD technology at the Newnan Utilities Wahoo Creek Facility.

1:30 pm - 3:00 pm

CLSS

Operator Certification 3 and 4 Review

PLAZA A/B

The certification review classes are geared toward the operator preparing to take the Class 1-2-3-4 certification exams. The material is a comprehensive but consolidated overview of each of the classifications topics and requirements. Class 3-4 review is heavily directed to lagoon and fixed film topics and the Class 1-2 centers of activated sludge and solids handling topics.

2:00 pm - 2:30 pm

SHED2

Active Watershed Groups in Illinois

Presenter: Maggie Yarnold, Loyola University - Chicago

SAPPHIRE

Maggie Yarnold is a fourth-year student at Loyola University Chicago studying environmental conservation and restoration, environmental policy and journalism (print).

OPS2

The Real Science Behind Polymer Activation

Presenter: Bob Grundy, Regional Sales Manager - UGSI Solutions, Inc.

RUBY

The cost of polymer is frequently the third largest operating expense at many wastewater treatment plants. While higher molecular weight is required to achieve more efficient flocculation, it also presents technical challenges in the preparation of polymer solutions. This presentation illustrates how to maximize the value of polymer by understanding fluid dynamics and polymer chemistry. It includes different mixing technologies on the effectiveness of polymer solution. Field evaluation showed that a well-designed polymer mixing system can improve the performance of screw press and gravity belt thickener as well as lead to significant polymer savings of up to 31%.

2:30 pm - 3:00 pm

SHED2

Watershed Implementation: Streambank Restoration 2.0 (Ted Talk)

Presenter: Stephen McCracken, DuPage River Salt Creek Workshop

SAPPHIRE

Stephen McCracken works for the Conservation Foundation and is the Program Manager for the DuPage River Salt Creek Workgroup (DRSCW). He is a graduate of Queens University Belfast and holds Masters Degrees in both Environmental Science (specializing in water resources, University College of North Wales) and Applied Environmental Economics (Imperial College London). He has twenty years of project management experience gained working in Europe, Africa and North America. He has authored several papers on resource management and water pollution.

WEDNESDAY, FEBRUARY 13		ROOM
OPS2	An Introduction to WaterOperator.org Presenter: Steve Wilson, Groundwater Hydrologist - Illinois State Water Survey at the Prairie Research Institute WaterOperator.org provides free resources from over 800 organizations (federal and state agencies, technical assistance providers, associations, trainers, etc.) that serve the water and wastewater industry. It includes a national training calendar listing nearly 15,000 workshops, training events, webinars, and conferences annually. There are links to over 18,000 resources (handbooks, videos, manuals, guides, and websites) that cover every aspect of operations, compliance, capacity development, regulations, and best practices for both water and wastewater operators. All information is free and publicly available for download. Additional resources about water industry careers and source water protection for groundwater are also available through the website. This presentation will provide an overview of the resources available for wastewater operators, and explain how to get the most benefit from the website.	RUBY
3:30 pm - 4:00 pm		
SHED2	Nutrient Assessment Reduction Plan (NARP) Update Panel Discussion Moderators: Cindy Skrukurd, Sierra Club; Stephen McCracken, DuPage River Salt Creek Workgroup; Amy Dragovich, Illinois EPA Deanna Doohaluk, DuPage River Salt Creek Workgroup A panel discussion with several stakeholders updating the audience on the topic of the Nutrient Assessment Reduction Plan (NARP).	SAPPHIRE
3:30 pm - 4:30 pm		
OPS2	OSHA Excavation Standard 101 & The Rules for First Responder Presenter: James G. Sullivan, President - Prospan Shoring This program will provide an overview of the rules contained within OSHA Excavation Standard 29 CFR 1926.650-651. This will include protective systems, how they work and what manufacturers require. Emergency response to cave-in and what you can expect from First Responders will also be discussed. First Responders are bound by the very same rules as those in construction. Their actions, or lack thereof, may very well surprise you.	RUBY
3:30 pm - 5:00 pm		
CLSS	Operator Certification 1 and 2 Review The certification review classes are geared toward the operator preparing to take the Class 1-2-3-4 certification exams. The material is a comprehensive but consolidated overview of each of the classifications topics and requirements. Class 3-4 review is heavily directed to lagoon and fixed film topics and the Class 1-2 centers of activated sludge and solids handling topics.	PLAZA A/B
4:00 pm - 4:30 pm		
SHED2	Watershed Management Open Forum	SAPPHIRE

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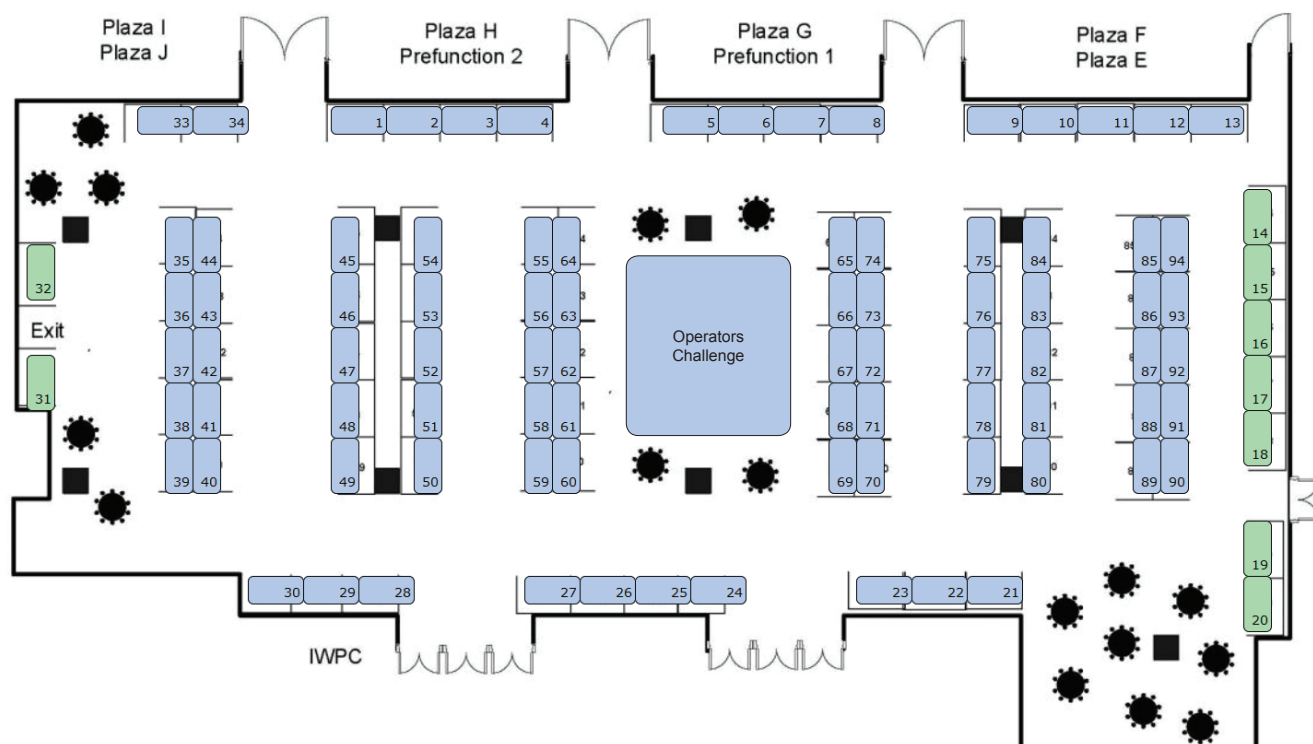
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61	Applied Technologies, Inc. 468 Park Ave Unit 1 Lake Village, IL 60046-6518 ph. 847-309-5402	Consulting EA Firm Specializing in water/wastewater management.	www.ati-ae.com	
50	AquaFlo Technologies Inc. 1434 Hillcrest Dr Greenville, IL 62246-2757 ph. 618-664-4469	Providers of process equipment for the water pollution control industry	www.aquaflotech.com	
66	Berg-Johnson Associates 4034 W. Cornelia Chicago, IL 60641	Manufacturer's Representative and Distributor for Instrumentation, SCADA, and Controls Products. Flow, Pressure, Level, Temperature, Analytical, Gas Detection, PLCs, Radios, Wireless, and More.	www.berg-johnson.com	
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47	BihleerTech, Inc. 411 S. Reedwood Drive Joliet, IL 60436 ph. 815-714-8505	Illinois distributor for Bio-Microbics wastewater treatment systems.	http://bihlertech.com	
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75	Eco Infrastructure Solutions 3961 Perry Blvd Whitestown, IN 46075 ph. 317-769-5290	Underground Maintenance equipment provider selling Camel & Muddog, Subsite Inspection equipment, Ringomatic, & Sonetics Communication Systems. Contractor services include trenchless sewer repair, cleaning, televising, and hydroexcavation.	www.ecoinfrastructure.net	
5	Electric Pump, Inc. 4280 E. 14th Street Des Moines, IA 50313 ph. 515-557-9402	Electric Pump, your solution company. We distribute pump, controls, accessories and turn key service department for installation and repairs.	www.electricpump.com	
88	ENECON 6 Platinum Court Medford, NY 11763 ph. 815-326-5451	ENECON Corporation is a world leader in developing advanced polymer composite technologies, specializing in unique industrial coatings that protect machinery, equipment and plant structures from: erosion, corrosion, cavitation, chemical attack, wear & abrasion, impact, hydrostatic pressure issues, as well as problem areas on roofs, walls, floors and expansion joints.	www.enecon.com	http://www.twitter.com/eneconcorp
74	Energenecs 700 East Milan Drive Saukville, WI 53080 ph. 262-377-6360	Energenecs provides system integration services, application engineering, and equipment and field services for water and wastewater treatment, control, and renewable energy systems.	www.energenecs.com	
53	Environmental Express 2345A Charleston Regional Parkway Charleston, SC 29492 ph. 843-576-1133	Environmental Express, Inc., a Cole-Parmer company, is a leading developer and manufacturer of environmental laboratory supplies. The company provides a range of laboratory products used primarily in environmental analysis.	http://www.envexp.com/	
52	Environmental Resources Training Center ERTC/SIUE, Campus Box 1075 Edwardsville, IL62026 ph. 618-650-2210	Training and education for water/wastewater operators and Cross Connection Control inspectors	https://www.siu.edu/ertc/	

EXHIBITORS DIRECTORY

Booth	Company Name & Address	Description	Website	Twitter
4	Equipment Sales 101 West Terra Cotta Avenue Crystal Lake, IL 60014 ph. 815-236-8511	Supplier for Trench Safety Equip, Confined Space Safety Equip, Bypass Pumping Equip, Sewer plus, Line Locators, Saws, Survey Equip., misc hand tools.	www.leejensensales.com	
81	Farnsworth Group, Inc. 2709 McGraw Drive Bloomington, IL 61704 ph. 309-663-8435	Farnsworth Group, Inc. is a full service engineering and architectural firm providing wastewater and stormwater design and management services for municipalities and public service districts throughout Illinois.	www.f-w.com	
9	Fehr Graham 1610 Broadmoor Drive Champaign, IL 61821 fax 217-352-7922	Fehr Graham, a premier provider of engineering, environmental and funding solutions for commercial, industrial, institutional and government clients, can help you.	fehr-graham.com	@fehrgraham
49	Flo-Systems, Inc. 905 Cherry Lane Troy, IL 62294-3157	For 36 years, Flo-Systems, Inc., has been a water and wastewater treatment equipment design/sales service firm focused on the municipal market.	www.flosystems.com	
33	Flow Technics Inc 181 Ontario St Frankfort, IL 60423-1646 ph. 815-277-2600	Founded in 1988, Flow-Technics offers a complete line of water and wastewater equipment, specializing in pumping and control systems, stainless steel sluice gates, fiberglass covers, grinders, and package pumping systems. Flow-Technics has its own factory trained Service Department offering 24 hour emergency service.	www.flowtechnics.com	
84	G A Rich Sons 204 Perry Street Deer Creek, IL 61733 ph. 309-208-8856	Mechanical & Utility Contractor	garich.com	
41	Gasvoda & Associates, Inc. 1530 Huntington Drive Calumet City, IL 60409 ph. 708-701-1274	Provides equipment and services to the water and wastewater industries.		
39	Greg Piper Sales, LLC 24529 Royal Portrush Dr. Naperville, IL 60564	Represents manufacturers of manhole and pipe seals, dissimilar pipe couplers and EPP grade adjustments.	www.gregpipersales.com	
65	HMG Engineers, Inc. 9360 Holy Cross Lane Breese, IL 62230 fax (618) 594-8217	Multidiscipline consulting engineering firm with offices throughout Illinois.	https://hmgengineers.com	
82	HACH 1929 Sherwood Pl. Wheaton, IL 60189 Ph. 630.659.7532			
57	HOBAS Pipe USA 1413 E Richey Rd Houston, TX 77073-3508 ph. 800-856-7473	Hobas Pipe USA manufactures centrifugally cast, fiberglass-reinforced, polymer mortar (CCFRPM) pipe in diameters from 18 to 126-inches.	www.hobaspipe.com	
67	Hydro-Kinetics Corporation 5741 Manchester Avenue St. Louis, MO 63110 ph. 314-647-6104	Rep for Pumps, Controls and Process equipment for water and wastewater.	www.hydro-kinetics.com	
28	IDEXX Laboratories, Inc. One IDEXX Dr Westbrook ME 04092 fax 207-556-4630	Water testing solutions.	www.idexx.com/water	
78	Illinois Electric Works 2161 Adams Street Granite City, IL 62040 ph. 618-451-6900	Motor, pump, blowers, gearbox, crane and hoist service, motor control and variable Frequency Drive service	www.illinoiselectric.com	

EXHIBITORS DIRECTORY

Booth	Company Name & Address	Description	Website	Twitter
11	Jim Jolly Sales, Inc. 11225 Giordano Court Huntley, IL 60142 ph. 815-701-6173	Through our network of 25 manufacturers we offer solutions that save time, money, and energy for many of the daily obstacles that Owners and Distributors encounter. Please consider us as a resource for any current or upcoming projects.	www.JimJollySales.com	
24-27	LAI, Ltd. 5400 Newport Drive, Suite 10 Rolling Meadows, IL 60008-3721 ph. 847-392-0990	Manufacturer's Representative Providing Design, Sales and Service of High Quality Process Equipment, Pumps, Valves and Instrumentation. See our Ad on Page 13	www.lai-ltd.com	
79	LMK Technologies 1779 Chessie Lane Ottawa, IL 61350 fax 815-433-0107	LMK Technologies has been a leader in trenchless Cured-In-Place-Pipe (CIPP) lining since 1993. LMK is recognized by many municipalities and engineering firms as the innovative leader for the trenchless renewal of sewer laterals, mainlines and manholes.	www.lmktechnologies.com	@LMKTechnologies
63-64	MMG 120 E 15 th Ave North Kansas City, MO 64116 ph. 816-588-8700	Manufacturer Representatives for Wastewater Products	www.mmgonline.net	
45	Marshall-Bond Pumps 118 Kirkland Circle, Suite G Oswego, IL 60543 ph. 630-319-6807	Agent of wastewater equipment	marshallbond.com	
89	MECO Engineering Co., Inc. 3120 Palmyra Road Hannibal, MO 63401 ph. 573-221-4048	Civil, Structural, Mechanical/Electrical engineering, Land Surveying		
6	Metropolitan Industries 37 Forestwood Drive Romeoville, IL 60446	Metropolitan Industries specializes in the design and engineering of complete pumping systems that solve a variety of water, wastewater and stormwater challenges in various municipal and building applications.	www.metropolitanind.com	@MetropolitanInd
38	Milliken Infrastructure Solutions 920 Milliken Road Spartanburg, SC 29303 864.503.6182	Milliken Infrastructure Solutions helps extend the life of the world's infrastructure through superior engineering support and innovative materials to help strengthen, repair, protect and rehabilitate assets with our Concrete Cloth geosynthetic cementitious composite mats.	infrastructure.milliken.com	
44	Municipal Equipment Company 2735 Mercantile Dr St. Louis, MO 63144-2807 ph. 314-290-2977	Wastewater treatment equipment supplier including process equipment, pumps, tanks, and odor control.	www.munequip.com	
80	PDC Laboratories, Inc. 1210 Capital Airport Drive Springfield, IL 62707 ph. 217-414-7762	PDC Laboratories, Inc. is a NELAP certified environmental testing laboratory that provides analytical services throughout the environmental community.	www.pdclab.com	
68	Pedrollo Group PO Box 5263 Woodridge, IL 60517 ph. 630-478-6791	Pedrollo is a family-owned and operated water pump manufacturer in Italy. For over 40 years, its premium pump products have been sold in over 160 countries.	https://www.pedrollo.com/en/default_t1	
72-73	Peterson and Matz, Inc. 2250 Point Blvd., Ste. 300 Elgin, IL 60123 fax 636-391-1544	Engineered Process Equipment for Water, Wastewater & Industrial Waste Treatment; Spare Parts & Replacements.	www.petersonandmatz.com	
56	R.E. Pedrotti 267 Wolfner Dr. Fenton, MO 63026-2801 ph. 314-577-4882	R.E. Pedrotti is a System Integrator working over 40 years in the Municipal Water and Wastewater Industries. REP specializes in SCADA, instrumentation, telemetry, controls, and service.	repedrotti.com	

EXHIBITORS DIRECTORY

Booth	Company Name & Address	Description	Website	Twitter
43	Plymouth Technology, Inc. 2700 Bond Street Rochester Hills, MI 48309 ph. 248-537-0081	Plymouth Technology has more than 27 years in the water treatment industry, and is committed to advancing fair partnerships between industrial manufacturers and our employees. Our staff delivers cost-effective solutions for wastewater, water treatment, and industrial processes to generate spectacular results. We respond quickly, provide the best value and services, utilize our extensive network within the industry and help to drive the success of our customers.	http://www.plymouthtechnology.com	
58	Ray Lindsey Company PO Box 958 St. Charles, MO 63302-0958 ph. 816-388-7440	Ray Lindsey Company is a Manufacturer's Rep. We represent and sell for manufacturers who build large scale water and wastewater equipment. We also do start-up and service on this equipment.	www.raylindsey.com	@RayLindsey7440
71	Ressler & Associates, Inc. P.O. Box 4018 Ballwin, MO 63022 fax 636-391-1544	Engineered Process Equipment for Water, Wastewater & Industrial Waste Treatment; Spare Parts & Replacements	www.resslerassociates.com	
7	Shive-Hattery 316 2nd Street SE I Suite 500 Cedar Rapids, IA 52401	We are a full service architecture and engineering consulting firm providing outstanding service for our clients and fulfilling careers for our employees.	www.shive-hattery.com	
29	Smart Energy Design Assistance Center (SEDAC) One St. Mary's Road Champaign, IL 61820	The Smart Energy Design Assistance Center (SEDAC) is a public-private partnership that provides advice and analysis to facilities to achieve energy efficiency savings and reduce the Illinois energy footprint.	https://smartenergy.illinois.edu/wastewater	@IllinoisSEDAC
59	Sol Systems, LLC 1101 Connecticut Ave., NW 2nd Floor Washington, DC 20036 Attn: Charity Sack See our ad on page 26	Sol Systems develops, finances, and invests in commercial and utility-scale solar energy assets across the U.S. Since 2008, Sol Systems has delivered over 800MW of solar projects for Fortune 100 companies, municipalities, universities, and water treatment plants.	solsystems.com	
21 - 22	CE Soling & Associates 1121 Virginia Avenue Libertyville, IL 60048-4439 ph. 847-406-8493	Our company provides process equipment solutions for the municipal wastewater and water markets in northern IL and northwest IN. We represent industry leaders.	cesoling.com	
85	Sonar Technology 3309 Robbins Road #419 Springfield, IL 62704 ph. 760-274-4325	Through the use of remote control devices, equipped with sonars we provide underwater mapping with 3D imaging. By collecting this information we can calculate overall liquid and organic volumes with 100% accuracy.	www.sonar2u.com	
46	Spectrum Contracting Corporation 815 Beech Street Grafton, IL 63024	The upper Midwest's premier high-build protective and restoration coatings & linings specialist. Structural Rehabilitation, Waterproofing, Infiltration/Inflow Control, Concrete Repair & Restoration	spectrumcontracting.com	
76	Stewart Spreading 3870 N. Route 71 Sheridan, IL 60551 ph. 630-768-3085	Stewart Spreading, Inc. performs a host of residuals management services, including: Digester Cleaning & Maintenance, Mobile Dewatering and Screening, Lagoon Cleaning / Decommissioning, Vac-Truck Services, Dredging, Emergency Pumping, Wastewater Residuals Management, Drinking Water Residuals Management, Lime and Other, Beneficial Recycling, Green Industrial Solutions, Land Application of Residuals, Water / Wastewater Plant Construction Services, Water / Wastewater Plant Decommissioning Services, Community Outreach & Public Relations Services, Crop Production & Custom Farming Services, Agronomic Services, Transportation of Liquid/ Dewatered Residuals		
8	Suburban Laboratories 1950 S. Batavia Ave, Suite 150 Geneva, IL 60134 ph. 708-544-3260	Full service environmental laboratory analysis of wastewater, drinking water, sludge, soil and solid waste. Other services include field sampling for all Pretreatment and watershed/stream study programs.	www.suburbanlabs.com	

EXHIBITORS DIRECTORY

Booth	Company Name & Address	Description	Website	Twitter
34	Sustainable Generation PO Box 3593 Greenwood Village, CO 80155 ph. 303-699-1585	Scalable commercial biosolids composting systems for all organic waste types and all project sizes. We help reduce the cost and complexity of composting operations while meeting environmental compliance utilizing the GORE® Cover System. In operation since 1998, in over 30 countries, processing over 3.5 million tons of organic waste annually, this system reduces your risk and produces high quality compost. We help you get started and support you through design, construction, and operations.	www.sustainable-generation.com	
42	Swanson Flo 151 Cheshire Lane N., Ste 700 Plymouth, MN 55441 ph. 763-383-4700	Providing innovative process control solutions through quality equipment and experienced application engineering and service with an unrelenting desire to create proactive customer relationships.	swansonflo.com	
87	Symbiont 6737 W. Washington Str, Ste 3440 Milwaukee, WI 53214 ph. 414-291-8840	Symbiont Science, Engineering and Construction, Inc. (Symbiont) is a full-service engineering, design-build and construction firm that collaborates with its clients to plan, design, and construct custom solutions.	http://www.symbiontonline.com/	
36	TT Technologies, Inc. 2020 E. New York St. Aurora, IL 60502 ph. 80-341-30870	TT Technologies is a leader in the water industry for over 50 years including GRUNDOMAT Piercing Tool, GRUNDORAM Pipe Ramming, GRUNDOBURST Static Pipe Bursting, GRUNDOCRACK Pipe Bursting, HDD Assist and Directional Drilling.	www.tttechnologies.com	
30	Taylor Scientific 950 Hanley Industrial Court St. Louis, MO 63144-1426 ph. 314.962.5555	Taylor Scientific is a full service distributor of laboratory supplies, consumables, equipment and Chemicals. The company is located in the heart of St. Louis, Missouri and has been in business since 1971.	taylorscientific.com	
3	Teklab, Inc. 5445 Horseshoe Lake Road Collinsville, IL 62234 ph. 618-920-2534	Teklab, Inc. is an environmental laboratory with a NELAP accreditation by the IEPA. Our main laboratory is located in Collinsville with office locations in Downers Grove and Springfield to better serve the entire state of Illinois.	www.teklabinc.com	
62	Tnemec / Taylor Coating 8520 Brookfield Ave Brookfield, IL 60513 fax 708-387-7941	Hi-performance protective coatings and linings	www.tnemec.com/taylorcoating	
69	Trotter and Associates Inc 40W201 Wasco Rd Ste D St. Charles, IL 60175-8535 ph. 630-587-0470	Full service civil engineering firm established in 1999 that specializes in municipal engineering.		
77	USA Bluebook PO Box 9005 3781 Burwood Road Gurnee, IL 60031 ph. 847-377-5162	Water and wastewater MRO	WWW.USABLUEBOOK.COM	
55	VEGA Americas, Inc. 4170 Rosslyn Dr. Cincinnati, OH 45209 ph. 513-272-0131	VEGA is a global manufacturer of process instrumentation. Its product portfolio includes level measurement sensors, point level switches, pressure transmitters, and equipment and software for integration into process control systems.	https://www.vega.com/en/home_us/	@VEGA_Americas
37	VTSCADA 718 Old Post Road Buffalo Grove, IL 60089 ph. 224-409-8221	VTScada provides control and monitoring software for Water and Wastewater treatment facilities.	https://www.trihedral.com/	

EXHIBITORS DIRECTORY

Booth	Company Name & Address	Description	Website	Twitter
90	Vandevanter Engineering - A Cogent Company 705 East First South Mt. Olive, IL 62069 ph. 636-717-2215	Manufacturers' Representative for water & waste water treatment equipment specializing in field service work, on-Site maintenance, complete on-site equipment retrofit/upgrade, and control panel replacement/upgrade work and turn key SCADA systems.		
70	Visu-Sewer W230 N4855 Betker Drive Pewaukee, WI 53072	Visu-Sewer provides all of the services necessary to keep underground infrastructure operating at optimum flow and performance. Visu- Sewer also provides diverse trenchless processes and solutions to maintain, rehabilitate and repair entire collection of systems to deliver maximum performance.		
10	WTR Solutions PO Box 505 Earlham, IA 50072 ph. 515.240.1050	WTR Solutions provide an advance aeration technology that increases biological treatment with waste water, reduces sludge, odors and reduced electrical usage.		
23	Walter E. Deuchler Assoc., Inc. 230 Woodlawn Avenue Aurora, IL 60506-5109 ph. 630-897-4651	Founded in 1916, Deuchler has been defined by responsiveness and its ability to solve complex engineering problems. L Deuchler helps clients and communities plan, build, repair and renew for the long	www.deuchler.com	
51	Wilkens Anderson Company 4525 W Division St Chicago, IL 60651 ph. 773-551-3205	We are a Chemical Lab Distributor, specializing in Apparatus, Instruments, Supplies, Chemicals and Glassware for the Water and WasteWater Industries.	www.wacolab.com	

Operators Challenge

TUE, Feb 12 | 1:00 pm - 4:00 pm
Exhibit Hall

We invite all attendees to come and participate in the 6th annual Operators Challenge on Tuesday in the Main Exhibit Hall at 1:00 pm. The Operators Challenge is intended to provide a fun and educational experience that anyone can enjoy. Participants will be able to choose from any or all of the following activities:

LAB: Microscopic Examination and a Fecal Coliform analysis using the IDEXX system

SAFETY: Confined Space Entry and Chemical Identification

MAINTENANCE: SCADA system utilization and Pump Maintenance

OPERATIONS: A stunning written exam that tests your knowledge of plant operations

Each activity will be graded by a judge who will score participants based on their knowledge and procedures. Each of the four activities will be graded based on 100 points per activity for a total of 400 points. Everyone is encouraged to participate. Awards will be presented for the highest scoring individuals for each activity. An Overall Winner Award will be presented to the participant who completes all four activities with the highest overall score.

Participants may enter the contest by signing up at the registration table during the event. Pre-registration is not required.

The Operators Challenge has become a highly anticipated event so be sure to stop by, participate or cheer on your fellow colleagues.

Operators Challenge In-Kind Sponsors

We would like to thank the following companies for helping us make the 2018 Operators Challenge a success by donating their respective products and resources for use during the competitions.

We couldn't do it without you!

- Börger
- CE Soling
- CDM Smith
- Chamlin and Associates, Inc.
- Environmental Resources Training Center
- Fox Metro Water Reclamation District
- FullLife Safety
- Greeley & Hansen
- IDEXX Laboratories, Inc.
- MWRD
- Metropolitan Industries
- Nikon
- Sanitary District of Decatur
- Strand Associates, Inc.
- Urbana & Champaign Sanitary District
- Veolia



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- Energy Savings Up to 50%
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- SVI Values of 30-50 mL/g and MLSS of 8,000 mg/l
- No Secondary Clarifiers, Selector Zones or Return Sludge Pumping
- Robust Process without a Carrier

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5 I S

SELECT • SOCIETY • SANITARY • SLUDGE • SHOVELERS

The **Shoveler award** was designed to honor those hearty individuals who strive tirelessly for the betterment of our beloved Illinois Water Environmental Association. There are those individuals who are recognized, not by the board members or executive committee, but by fellow members who work quietly and diligently on one or more committees and give freely of their time. These individuals do not seek fame or fortune or even lofty aspirations of chair or board member status. These individuals that we honor with this award expect no congratulations or acknowledgement, but revels in the feeling of a job well done. **Shovelers, it is of vital importance that we, as practiced Shovelers, recognize, seek out, and nominate these shy, meek individuals. These hard working members deserve the honor of elevation to the lofty pinnacles of Mount Biosolids. We recognize these intrepid individuals and bestow upon them the honor, air, and distinction of Shoveler Status.**



The I5S has made its decision using a sophisticated top secret ballot voting for new inductees into this hallowed and honored group. Inductees into this aromatic conclave are selected by their esteemed peers and usually exhibit the following characteristics:

- Selfless duty to the Illinois Water Environment Association
- Expect no accolades for their tireless duty
- Sacrifice time and effort for the common good of the committees they service.

The awarding of the coveted Golden Shovels will be presented during the Annual Awards Banquet on Monday, February 11, 2019.

2018 GOLDEN SHOVEL RECIPIENTS

-Honorary Shoveler: Ms Eileen O'Neill, WEF Keynote Speaker;

IWEA Shovelers: Mike Lutz, Farnsworth; and Dan Small, Strand Associates



PAST AWARD RECIPIENTS

Water Environment Federation

WEF Service Award

Recognition of the outstanding service to the Member Association (IWEA) and the Water Environment Association (WEF). This award is given to the WEF Delegate who has just finished their three year term.

2018	Mark Halm
2016	Mary Johnson

WEF Quarter Century Operators Club

Acknowledges the operators of wastewater treatment plants for their service and dedication in the water environment industry for 25 years. Applications are submitted and reviewed by the Federation Board of Directors.

John Lamb

WEF Lifetime Membership

Individuals who have been a member of WEF and one or more WEF Member Association for 35 or more consecutive years, and are at age 65 or older.

2018	Terry Krause
2017	Herb Anderson

William D. Hatfield Award

Acknowledges operators of wastewater treatment plants for outstanding performance and professionalism.

2018	Sandra Matual
2017	Joel Ilsemann
2015	Brett Garelli

Arthur Sidney Bedell Award

Acknowledges extraordinary personal service to a Member Association by organizational leadership, administrative service or stimulation of technical functions.

2018	Lou Storino
2017	Laurie Frieders
2016	Dan Bounds

George W. Burke Safety Award

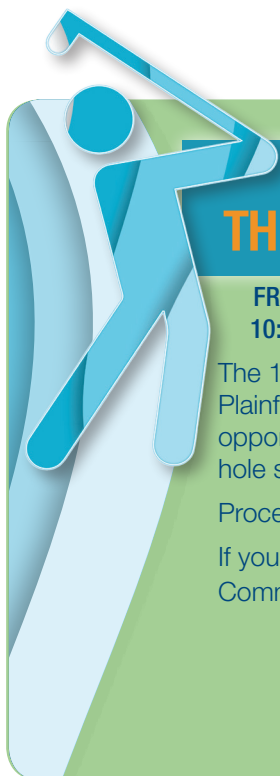
Recognizing an active and effective safety program.

2018	Carol Stream Water Recl. Center
2017	American Bottoms WWTP
2015	Sanitary District of Decatur

Laboratory Analyst Excellence Award

Acknowledges an individual for outstanding performance, professionalism and contributions to the water quality analysis profession.

2018	Bruce Rabe
2017	Donna Coolidge



**SAVE
THE DATE**

16th Annual IWEA Golf Outing and After Party

**FRIDAY, June 7, 2019
10:00 a.m.**

The 16th Annual IWEA Golf Outing will be held on Friday, June 7, 2019 at the Links at Carillon Plainfield, Illinois. Golfing will be followed by drinks, appetizers and awards. This is an excellent opportunity for members to get together and for businesses to market their company through hole sponsorship, interact with professionals and meet potential clients.

Proceeds contribute to the IWEA Scholarship and Charitable Giving Fund.

If you have any questions on sponsorship opportunities please contact John Lamb, IWEA Golf Committee Chair at jlamb3858@gmail.com.



PAST AWARD RECIPIENTS

Illinois Water Environment Association

IWEA AWARDS BANQUET

MONDAY, February 11, 2019

6:00 - 9:30 p.m.

Join us for the 40th Annual IWEA Awards Banquet

Crowne Plaza

Diamond/Emerald Ballroom
3000 South Dirksey Parkway
Springfield, IL

- 6:00 p.m. - 7:00 p.m.
Cocktails and Appetizers
- 7:00 p.m. - 8:00 p.m.
Dinner
- 8:00 p.m.
WEF and IWEA Awards and I5S Presentation

Need a ticket?

Tickets are \$75 and may still be available for purchase. Please text or call

Executive Manager Laurie Frieders
630-391-2169.

See the IWEA website Awards Page at www.iweasite.org/member_awards.php for a full listing of all past award recipients!

Kenneth C. Meridth Award

Acknowledges an individual for outstanding contributions to a wastewater treatment plant operator's professionalism.

2018 Wade Lagle

2017 Rick Lallish

Clean Water Awards

Acknowledges student winners from the Illinois Junior Water Science Fair. IWEA provided judges for water related projects.

2017 Irein Thomas

2015 Zainab Shah

Public Official Award

Presented to an elected or appointed public official that has made a documented significant contribution in the areas of clean water legislation, public policy, government service or another area of public prominence that resulted in improvements to the water environment.

2018 Dick Durbin, Senator, State of IL

2017 President Maryana T. Spyropoulos

Paul Clinebell Award

Recognizes a long time member who has and continues to provide significant contributions to the Illinois Water Environment Association.

2017 Mark Halm

2016 Norm Rose

Technical Presentation Award

Acknowledges outstanding presentations at the Illinois Water Environment Association annual conference - chosen based on evaluations submitted by conference attendees.

2018 Dr. George Wells

2017 Raj Bhattarai

Illinois Stockholm Jr. Water Prize

The purpose of the SJWP program is to increase student interest in water-related issues and research and to raise awareness about global water challenges. These awardees represented Illinois in the national competition.

2018 Ashritha Karuturi

2017 Irein Thomas

Sylvanus Jackson Scholarship

A \$500 scholarship acknowledging a student from the Environmental Resources Training Center through SIU-E – completing the program and pursuing a career in water operations.

2018 Sara Atwood

2017 John Greathouse

Golden Manhole Award

Recognizes a person for outstanding service in the Collections field. Selected by the IWEA Collection Systems Committee.

2018 Keith Zollers

2015 Allison Swisher

Clean Water Scholarship

A \$1,000 scholarship designed to aid students preparing for careers within the water environment.

2018 Teresa Dorado

2017 David Litwin / Chelsea Peterson

Outstanding Young Professional Award

Recognizes the contribution of young water environment professionals for significant contributions to the IWEA.

2018 Brooke Henry

2017 Kelly Lockerbie

Environmental Career Scholarship

Designed to aid science-minded students preparing for college. A \$500 scholarship to a high school student who is college bound and interested in science and the environment.

2018 Jonathan Kolweier / Jessica Shen

2017 Serena Zhu



2018 AWARD NOMINEES

Illinois Association of Water Pollution Control Operators

Group 1 - Class A Plant of the Year Award

Lake County Dept. Public Works -
Des Plaines

Blo-Nor Wtr Reclamation District
Southeast Facility

Sang. County Water Reclamation
District - Sugar Creek

Granite City Regional WWTF

Group 2 - Class B Plant of the Year Award

Lake in the Hills Sanitary District

City of Robinson Wastewater
Treatment Facility

City of Pittsfield

Stookey Township WWTP

City of Murphysboro

Group 3 - Class C Plant of the Year Award

City of Oregon WWTF

Village of Banner WWTF

Village of Channahon

Village of Findlay WWTF

City of Carrollton

Caseyville Township - West STP

Lawrence Co Correctional Center

Group 4 - Class D Plant Award of the Year

Aqua Illinois - Willowbrook STP

City of Henry WWTF

Village of Stewardson WWTF

Village of Mulberry Grove

Village of Energy WWTP

Industrial Achievement Award

SWD, Inc. Addison

JBS - Swift Pork

Olin Corporation - East Alton

Operator of the Year

Janice Melton-Sheppard - City of
Genoa WWTF

Dan Hughes - Jacobs - Carol
Stream

Doug Eastman - City of Eureka

Jake Kinkade - City of Pontiac

Tim Ferguson - American Water -
Lincoln

Bill Zimmer - City of Highland
WWTP

Jim Steward - City of Murphysboro



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PAST AWARD RECIPIENTS

Illinois Association of Water Pollution Control Operators

Group 1 - Class A Plant of the Year Award

Recognizes domestic treatment facilities of 1.0 MGD and above, whose performance is indicative of extraordinary effort to properly manage, operate, and maintain their facilities to produce an exceptional effluent quality.

2017	Sangamon Co. WRD - Spring Creek
2016	American Water Oak Valley STP
2015	DeKalb Sanitary District
2014	American Bottoms Sauget
2013	Village of Hanover Park
2012	Village of Glendale Heights
2011	Rock River Water Reclamation District
2010	Urbana-Champaign Sanitary District

Group 2 - Class B Plant of the Year Award

Is all activated sludge plants below 1.0 MGD whose performance is indicative of extraordinary effort to properly manage, operate, and maintain their facilities to produce an exceptional effluent quality.

2017	Village of Mahomet
2016	United State Penitentiary - Marion
2015	City of Millstadt WWTF
2014	Caseyville Township West WWTF
2013	City of St. Charles
2012	City of Genoa
2011	Village of Davis Junction
2010	Southern Illinois University

Group 3 - Class C Plant of the Year Award

Is all biological film plants below 1.0 MGD whose performance is indicative of extraordinary effort to properly manage, operate, and maintain their facilities to produce an exceptional effluent quality.

2017	Town of Cortland
2016	Lost Lake Utility District
2015	City of Vienna WWTP
2014	Village of McNabb
2013	Village of Nokomis
2012	Village of Edinburg
2011	City of Mount Olive
2010	Village of Hutsonville

Group 4 - Class D Plant Award of the Year

Is all lagoon plants under 1.0 MGD whose performance is indicative of extraordinary effort to properly manage, operate, and maintain their facilities to produce an exceptional effluent quality.

2017	City of Bunker Hill
2016	Village of Goodfield
2015	Village of Energy WWTP
2014	Village of Dakota
2013	Village of Woodson
2012	Village of Shannon
2011	City of Breese
2010	City of Leroy

Operator of the Year Award

Acknowledges operators of wastewater treatment plants for outstanding performance and service in their community, the wastewater industry, and to the environment.

2017	Rick Lallish - ERTC
2016	Larry Stahl, Village of Hanover Park
2015	Tom Glendenning, City of Freeport
2014	Sue Baert, Wheaton Sanitary District
2013	Robert Trueblood, Fox River Water Reclamation District
2012	Fred Dale, Salt Creek Sanitary District
2011	Andrew Wamus, Village of Algonquin
2010	John LaRocca, Village of Roselle

Clarence W. Klassen Outstanding Service Award

Is presented each year by the Illinois Association of Water Pollution Control Operators, to an individual whose achievements in the wastewater field, within the State of Illinois, best exemplifies the standards of extraordinary personal service, as set by Clarence W. Klassen, former Technical Secretary and Chief Engineer of the Illinois Sanitary Water Board.

2017	Rick Manner, Urbana-Champ. SD
2016	John LaRocca, Village of Roselle
2015	Ron Smith, Fairfield
2014	Lawrence Quick, Robinson
2013	Bruce Butler, Urbana-Champ SD
2012	Paul Shetley, ERTC
2011	David Sullivan, Pontiac
2010	Joseph Koronkowski, Champaign

Industrial Achievement Award

Is an industrial plant of any size that discharges to the waterways of Illinois whose performance is indicative of extraordinary effort to properly manage, operate, and maintain their facilities to produce an exceptional effluent quality.

2017	East Dubuque Nitrogen - East Dubuque
2016	Prairie State Generating Company
2015	U.S. Steel - Granite City
2014	Olin Corporation East Alton
2013	Peoples Gas, Light & Coke Co.
2012	Tyson Fresh Meats - Joslin
2011	Equistar Chemicals, Morris
2010	Caterpillar, Mosville
2009	Sabic Innovative Plastics, Ottawa

For a full listing of all past award recipients, visit the IAWPCO website at www.iawpco.org.

SCHOLARSHIP WINNERS & FUNDRAISERS

IWEA Clean Water Scholarship

IWEA is proud to award a Clean Water Scholarship each year to deserving college students who will be the next generation of water professionals. These scholarships are funded with your support through the popular IWEA golf outing and annual conference fundraisers.

IWAPCO ERTC Scholarship

In 1977, The Environmental Resources Training Center (ERTC) was designated by the Illinois Environmental Protection Agency (IEPA) as the Illinois center for education of personnel involved in the operation, maintenance and management of drinking water supply and wastewater treatment systems. Each year at graduation, IWAPCO presents scholarships to two graduates. Students of ERTC are not currently eligible for financial assistance through the State, so these scholarships go directly to the student to help offset the cost of the year long program.

Environmental Career Scholarship

The IWEA Environmental Career Scholarship is designed to aid science-minded students preparing for college. IWEA awards a \$500 scholarship to a high school senior who is interested in science and the environment. There are requirements and judging criteria that must be met to be considered for this scholarship.

Congratulations to Our Scholarship Winners!

2019 Sylvanus Jackson Scholarship:

Brian Hindelang

2018 ERTC Scholarship:

Brian Izatt

Bobby Wheeler



GIFT BASKETS

MONDAY, February 11 - 5:30 pm -
Emerald Ballroom

MORE GIFT BASKETS & 50/50 RAFFLE

TUESDAY, February 12 - 10:30 am – Exhibit Hall

TUESDAY, February 12 - 5:30 pm – Exhibit Hall

This year's scholarship fundraiser is a Gift Basket and 50/50 Raffle. Individual tickets are \$1.00 or \$20.00 for 25 tickets. You can purchase them at the registration desk. Gift baskets are on display in the exhibit hall and at booths of sponsoring exhibitors. Just drop your tickets in the bucket(s) in front of the gift basket(s) you would like to win.

Winners for each basket will be drawn on Monday at 5:30 p.m. and Tuesday at 5:30 p.m. The winner of the 50/50 raffle will be drawn on Tuesday at 5:30 p.m.

THANK YOU TO OUR GIFT BASKET SPONSORS

BihlerTech, Inc.
Boerger, LLC
Ressler & Associates
GA Rich Sons
PDC Laboratories
Peterson and Matz, Inc.
Walter E. Deuchler Associates, Inc.
AquaFlo Technologies, Inc.
Drydon Equipment
Eco Infrastructure Solutions
Electric Pump, Inc.
Flow Technics, Inc.
Greg Piper Sales, LLC
Metropolitan Industries
R.E. Pedrotti
Ray Lindsey Company

IWEA EXECUTIVE BOARD AND COMMITTEES

IWEA Executive Board 2018-2019

Kam Law, President
Cheryl Kunz, President Elect
Fred Wu, First Vice President
Dan Collins, Past President
Lee Melcher, Second Vice President
Mary Johnson, Corporate Secretary
Lou Storino, Treasurer
Debra Ness, Delegate 2019
Rebecca Rose, Delegate 2020
Laurie Frieders, Executive Director

IWEA Committees 2018-2019

Annual Conference

Cheryl Kunz, Chair
Frederick Wu, Co-Chair
Dan Bounds
Dan Collins
Dylan Cooney
Laurie Frieders
Monica Gunderson
Paul Hurley
Mary Johnson
Lynn Kohlhaas
Kam Law
Kelly Lockerbie
Mike Lutz
Peter Lynch
Meagan Matias
Anne Schroll
Lou Storino
Amanda Withers

Awards

Amanda Withers, Chair
Kelly Lockerbie, Vice Chair
Robert Brummond
Debra Ness
Norm Rose
Patricia Schatz
Dan Small
Lou Storino

Biosolids

Ryan Christopher, Chair
Kuldip Kumar, Vice Chair
Dominic Brose
Daniel Collins
Albert Cox
Webster Hoener
Trung Le
Kelly Lockerbie
Matt McGregor
Olawale Oladeji
Guanglong Tian

Collection Systems

Dan Bounds, Chair
Dan Small, Vice Chair
Todd Bonk
Nathan Davis

Erick DeBolt
Ed Dunn
Maureen Durkin
Alex Hoppes
Joe Sullivan
Mark Termini

Electrical Power, Energy & Controls

Gerry Ryan, Chair
Glenn Gottardo, Vice Chair
Mike Lutz
Tom Powell
Frederick Wu

Golf Outing

John Lamb, Chair
Mark Halm
Lee Melcher
Tim Tack

Governmental Affairs

Lou Kollias, Chair
Nathan Davis
Laurie Frieders
Bob Johnson
Deb Ness
Jay Patel

Industrial Pretreatment

Alice Ohrtmann, Chair
Sara Arabi, Vice Chair
Ted Denning
Laurie Frieders
Eduardo Gasca
Matthew Nihiser
Barbara Scapardine
Nichole Schaeffer

InFLOW (Introducing Future Leaders to Opportunities in Water) (Ad Hoc)

Lou Storino
Daniel Collins
Cheryl Kunz
Kam Law
Laurie Frieders
Mary Johnson
Meagan Matias

Laboratory

Keith Richard, Chair
Tiffany Poole, Vice Chair
Donna Collidge
Sue Glavan
Mary Johnson
Bruce Rabe
Norman Rose
Rebecca Rose
Jennifer Solomon
Linda Verhulst

LIFT (Leaders Innovation Forum for Technology)

Nina Kishetry, Chair
Sara Arabi, Vice Chair
Eider Alvarez Puras

Craig Brunner
Joseph Cummings
Omkar Ghavi
Mark Halm
David Koch
Kam Law
Yvonne Lefler
Arun Mande
Meagan Matias
Jane Schipma
Lou Storino

MAC (Manufacturers Advisory Committee)

Peter Lynch, Chair
Mike Schiazzano

Marketing

Monica Gunderson, Chair

Membership

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Anthony Giovannon, Vice Chair
Jay Bielanski
Dan Collins
Kelly Lockerbie
Fred Wu

Newsletter

Karen Clementi, Chair
Charles Corley
Ted Denning
Tim Kluge
Cheryl Kunz

Nominating Committee

Daniel Collins, Chair
Kam Law
Mary Johnson
Debra Ness
Lou Storino

Operators Challenge (Ad Hoc)

Greg Garbs, Chair

Nominating

Daniel Collins, Chair

Nutrient Removal and Recovery

Brett Garelli, Chair
Mark Halm, Vice Chair
Sara Arabi
Jackie Christensen
Carl Fischer
David Koch
Dr. Joseph Kozak
Matthew Schiltz
Daniel Small

Operator Training

Charles Corley, Chair
Michael Zigulich, Vice Chair
Jay Bielanski
Geza Ehrentreu
Gregory Garbs
Eduardo Gasco
Mary Johnson
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Kam Law
Larry McFall
Keith Richard
Lou Storino
Xiaolong Wang
Michael Zigulich

Plant Operations

Lynn Kohlhaas, Chair
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Don Bixby
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Wade Lagle
Rick Lallish
Sandra Matual
Lee Melcher
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Craig Brunner
Eric Cockerill
Steve Dennison
Chris DeSilva
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Sarah Langeliers

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Norm Rose, Chair
Bob Brummond
Cathy Busking
Greg Cargill
Dan Collins
Chuck Corley
Ted Denning
Greg Garbs
Mark Halm
Sharon Hawkins
Yvonne Lefler
Sam McNeilly
Becky Rose
Dan Small
Amanda Withers

Safety

Dan Rivera, Chair

Scholarship and Charitable Giving

Paul Hurley, Chair
Mary Johnson
Kam Law
Yvonne Lefler
Debra Ness
Geeta Rijal
Rebecca Rose
Carlee Scharnhorst
Lou Storino
Brian Wawczak
Fred Wu

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Student and Young Professionals

Meagan Matias, Chair
Shantanu Agrawal

Dylan Cooney
Saki Handa
Paul Hurley
Edward Jankun
Kelly Lockerbie
Lou Storino
Fred Wu

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Paul Hurley
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Yvonne Lefler
Donald Miller
Dongqi Qin

Watershed Management

Lindsay Birt, Chair
Gunilla Goulding, Vice Chair
Beth Baranski
Dan Bounds
Andrea Cline
Mary Beth Falsey
Stephen McCracken
Cindy Skrukud
Scott Tomkins

Website

Mary Johnson, Chair

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IAWPCO Executive Board 2018-2019

President, Rick Lallish
First Vice President, Mike Burnett
Second Vice President, Edger Mendoza
Third Vice President, Wade Lagle
Past President, Josh Stevens
Executive Director, Dave Miller
Secretary-Treasurer, Ed Brown

IAWPCO Regional Boards 2018-2019

Northeast

Anne George, Chair

Northwest

Kevin Farrell, Chair

Central

Dave Hermes, Chair

Southern

John Graham, Chair

IAWPCO Committees 2018-2019

Annual Conference Committee

Doug Armstrong
Mike Burnett
Edward Brown
Wade Lagle
Rick Lallish
Edgar Mendoza
David L. Miller
Josh Stevens

Program Committee

Doug Armstrong, Chair
Josh Stevens

Conference Awards Banquet

Josh Stevens
Doug Armstrong
Edward Brown
Mike Burnett
Tom Glendenning
Dave Hermes
Wade Lagle
Rick Lallish
Edgar Mendoza
Dave Miller
Adrian Pino

Plant Inspections and Awards

Phil Brandenburg, Chair
David E. Hermes
Doug Armstrong
Adrian Pino
Tom Glendenning
Dan Hughes
Wade Lagle David L. Miller
Ron Smith

Regional Committee

Anne George
Kevin Farrell
John Graham
Dave Hermes

Conference Registration

Edward Brown, Chair
Mike Burnett
Edgar Mendoza
Adrian Pino
Josh Stevens

Resolutions Constitution and By-Laws

Tom Stone, Chair
Doug Armstrong
Bruce Butler
Lawrence Quick

Publications, Promotions and Outreach

Edward Brown, Chair
John Graham
Kevin Farrell
Dave Hermes
Anne George
Rick Lallish
Edgar Mendoza
Dave Miller
Adrian Pino

Nominating Committee

Bruce Butler, Chair
John LaRocca
Sam McNeilly
Ronald Smith
J. Randy Stauffer
Lawrence Quick
Brandi Young

Spouses Program

Nikki Lallish
Rick Lallish

Local Arrangements

David Miller, Chair
Edward Brown

IWPC 2019 Twitter Contest

What you need:

1. Twitter

What are the rules?

- 5 Points for Text Only Tweet with Correct Hashtags
- 10 points for Photo Tweet with Correct Hashtags
- Tuesday Surprise!
(Tune into @IllinoisWEA Twitter Account for bonus points!)
- Incorrect tagging and non-relevant tweets will result in tweet disqualification

What are the hashtags?

All posts must include **#IWPC2019**, **@IllinoisWEA** and **@IAWPCO**

Bonus Tags:

- #MobileSession2019 10 points
- #IWPCOpsChallenge2019 10 points
- #IWPCPresenter 15 points
- #IWPCExhibitor 5 points
- Tag Vendors with @ (correcthandle) 10 points

What is the Prize?

Amazon Kindle Fire 7

(1) Winner Determined by Most Points Tallied by Tuesday Night

(1) Raffle for all other contestants:

- 1 drawing entry for 1 tweet
- 5 drawing entries for 10 tweets
- 10 drawing entries for 25+ tweets



TECHNICAL PRESENTATION EVALUATION

Rating Key

- 5 Strongly Agree 2 Disagree
4 Agree 1 Strongly Disagree
3 Neutral

To nominate a presentation for the “Best Technical Presentation” award, go to www.surveymonkey.com/r/85FGQZF

		Content of the presentation was relevant	I will be able to apply the knowledge acquired into my work environment	Content was presented at a level that met my expectations	Presentation was free from commercial bias	Presenter made good use of audio visual materials	The information presented was well organized	The presenter was knowledgeable about the subject	The presentation conclusion was complete
MON, Feb 11									
1:00 pm - 1:30 pm									
LIFT	Understanding Sensing Capabilities of Microbial Electrochemical Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BIOS	Mitigating Unintentional Consequences of Biological Phosphorus Removal at MWRD, Colorado	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1:00 pm - 2:00 pm									
SUST	Sustainability Introduction Roundtable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1:30 pm - 2:00 pm									
LIFT	Installation and Performance Review of the First Installed Algae Based Wastewater Treatment Facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BIOS	Energy Efficiency and Nutrient Reduction Through Process Optimization in Aerobic Digester	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2:00 pm - 2:30 pm									
LIFT	Digital Water: Treatment Plant Operational Improvements Enabled by Machine Learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BIOS	A Survey of WRRF Biosolids: Identifying Parameters Affecting Dewatering from Bio-P and THP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3:00 pm - 3:30 pm									
LIFT	Emerging Water Reuse Frameworks for Military Sustainment and Resiliency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BIOS	A Story of Biosolids Autocatalytic Pyrolysis: Process Scalability and Biochar Applications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3:30 pm - 4:00 pm									
LIFT	A Pilot Scale Study of MABR Technology for BNR Process Intensification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BIOS	Marketing of the Metropolitan Water Reclamation District of Greater Chicago's EQ Compost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4:00 pm - 4:30 pm									
LIFT	Introducing the First Full-Scale Membrane Aerated Biofilm Reactor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BIOS	Capture Phosphate by Designer Biochars Produced from Biosolids: A Win-Win Strategy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rating Key

5 Strongly Agree

2 Disagree

4 Agree

1 Strongly Disagree

3 Neutral

Content of the presentation was relevant	I will be able to apply the knowledge acquired into my work environment	Content was presented at a level that met my expectations	Presentation was free from commercial bias	Presenter made good use of audio visual materials	The information presented was well organized	The presenter was knowledgeable about the subject	The presentation conclusion was complete
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TUE, Feb 12

9:00 am – 9:30 am

LAB	Regulatory Update	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WET	Cost-effective Combined Sewer Overflow LTC Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR1	Balancing Operations, Reliability and Costs Needed to Achieve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9:30 am - 10:00 am

LAB	The Importance of Proper Sample Collection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WET	Green Infrastructure and Its Economic Impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR1	Phosphorus Influent Reduction Measures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10:30 am - 11:00 am

LAB	Ammonia Measurement by Ion Selective Electrode	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WET	Intelligent Odor Warning System at an MWRD Reservoir	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR1	Doubling Down on Phosphorus?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11:00 am - 11:30 am

LAB	Understanding Oil and Grease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WET	Biological High-Rate Clarification with Use of Existing SBR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR1	Tons of Green: Algae-based Nutrient Recovery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11:30 am - 12:00 pm

LAB	Quality Assurance in the Lab	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WET	Hurricane Harvey: Damage and Recovery at the Conroe Southwest Regional WWTP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR1	Enabling Fully Integrated Wastewater Resource Recovery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1:00 pm - 1:30 pm

PRET	2018 US EPA Pretreatment Training Highlights and Update	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELEC	Customizing Your Energy Mix: Can Solar Improve Plant Operations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR2	Thinking Differently: A Synergistic Solution for Nutrient Removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COLL	Implementation of the Infiltration/Inflow Control Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1:30 pm - 2:00 pm

PRET	Identifying Industrial Users Within Your Service Area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELEC	Energy and Cost Saving Opportunities for Wastewater Processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR2	S2EBPR Configuration for Phosphorus Removal at DuPage County	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COLL	Calumet Tunnel and Reservoir Plan History and Impact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rating Key

5 Strongly Agree

2 Disagree

4 Agree

1 Strongly Disagree

3 Neutral

		Content of the presentation was relevant	I will be able to apply the knowledge acquired into my work environment	Content was presented at a level that met my expectations	Presentation was free from commercial bias	Presenter made good use of audio visual materials	The information presented was well organized	The presenter was knowledgeable about the subject	The presentation conclusion was complete
2:00 pm - 2:30 pm									
PRET	A PCI Tutorial: Everything's Going to Be All Right	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELEC	Choosing the Right Blower Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR2	Achieving Stable EBPR at Gary Sanitary District	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COLL	Keep Out the Rain - Kansas City's Private I/I Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2:30 pm - 3:00 pm									
PRET	Conducting Pretreatment Site Inspections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELEC	Managing the Migration of Outdated Programmable Logic Controllers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR2	Taking Biological Process Controls from Manual to Reactive to Predictive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COLL	Creating Efficiencies Using Mobile GIS and Operational Dashboards for Wastewater Systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4:00 pm - 4:30 pm									
ENRG	Upgrades to the Secondary Treatment System to Increase Process Efficiency and Decrease Operating Costs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELEC	GreenBush CSO Tank- Electrical Design Innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR2	A Shortcut Nitrogen Removal Process for a Wisconsin WWTP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COLL	Reducing Collection System O&M Costs by Eliminating Lift Stations with Deep Gravity Sewers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4:30 pm - 5:00 pm									
ENRG	CHP and Solar Systems in Wastewater Treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELEC	Power in Planning - Electrical Updates at WSSC's Piscataway WRRF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NRR2	Fermenters and Sidestream Phosphorus Treatment: Process Design and Practical Considerations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COLL	Under the River and Through the Pipelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WED, Feb 13									
9:00 am - 9:30 am									
OPS1	Do You Need a Computerized Maintenance Management System (CMMS)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLAN	Intensification: When does it make cents or sense? A tale of three case studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9:00 am - 10:00 am									
SHED1	Illinois Water Quality Standards Update	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9:30 am - 10:00 am									
OPS1	Let the Water Flow: Startup of the new Aerated Grit Facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rating Key

5 Strongly Agree

2 Disagree

4 Agree

1 Strongly Disagree

3 Neutral

Content of the presentation was relevant	I will be able to apply the knowledge acquired into my work environment	Content was presented at a level that met my expectations	Presentation was free from commercial bias	Presenter made good use of audio visual materials	The information presented was well organized	The presenter was knowledgeable about the subject	The presentation conclusion was complete
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WED, Feb 13

PLAN	Selection of the Appropriate SBR Process Within Existing Site Constraints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10:30 am - 11:00 am								
SHED1	Illinois Nonpoint Source Program Update	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OPS1	Ultraviolet Disinfection: Tips, Tricks and Considerations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLAN	BAF vs. CAS: An Evaluation of Biological Aerated Filtration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11:00 am - 11:30 am								
SHED1	Illinois TMDL Program Update	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OPS1	Chemical Phosphorus Removal - Design and Operation Considerations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLAN	Odor Control Studies at Egan and O'Brien Water Reclamation Plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11:30 am - 12:00 pm								
SHED1	Chloride Variance: Time-Limited Water Quality Standard Update	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLAN	BioWin modeling to Develop BNR Process Configuration to meet NPDES Permit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OPS1	Process Monitoring and Control for Biological Phosphorus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1:00 pm - 1:30 pm								
SHED2	IL EPA Permits Section Update	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1:30 pm - 2:00 pm								
SHED2	Illinois MS4 Permit Implementation Round Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OPS2	Boosting Conservation and Efficiency for Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2:00 pm - 2:30 pm								
SHED2	Active Watershed Groups in Illinois	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OPS2	The Real Science Behind Polymer Activation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2:30 pm - 3:00 pm								
SHED2	Watershed Implementation: Streambank Restoration 2.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OPS2	Introduction to WaterOperator.org	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3:30 pm - 4:00 pm								
SHED2	Nutrient Assessment Reduction Plan (NARP) Update Panel Discussion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3:30 pm - 4:30 pm								
OPS2	OSHA Excavation Standard 101 & The Rules for First Responders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4:00 pm - 4:30 pm								
SHED2	Watershed Management Open Forum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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IAWPCO & IWEA 2019 CALENDAR OF EVENTS

Date	Meeting/Activity	Location
FEB 20	IWEA/IWWSC Pretreatment Dinner	Ditkas, Oakbrook, IL
MAR 7	APHA/EWR/IWEA MS4 Implementation Seminar	Chandler's Chop House, Schaumburg, IL
APR 12	IWEA Long Range Planning Meeting	Cantigny, Wheaton, IL
MAY 9	LIFT Innovative Technologies Tour	Gardner, IL
JUN 7	16TH Annual IWEA Golf Outing and After Party	Carillon Golf Course, Plainfield, IL
JUN 21	IWEA Executive Board and Chair Meeting	Starved Rock Lodge, Utica, IL
AUG 1	IAWPCO AJ LaRocca Memorial Golf Outing	Bloomington Golf Club, IL
SEP 13	IWEA Executive Board and Chair Meeting	Starved Rock Lodge, Utica, IL
SEPT 17	IWEA Nutrient Removal and Recovery Seminar	Medinah Shriners, Addison, IL
SEP 23-25	WEFTEC 2019	McCormick Center, Chicago
OCT 7-10	IAWPCO 80th Annual Regional Conferences	N. East, N. West, Central and Southern IL
DEC 6	IWEA Executive Board and Chair Meeting	Starved Rock Lodge, Utica, IL

Visit www.iawpco.org or www.iweasite.org for the latest information on upcoming events.



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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

