

**Drinking Water - Application for Approval of Courses  
for Continuing Education Credit - Attachment**

**Kentucky Water and Wastewater Operators Association  
62nd Annual KWWOA Conference  
February 20, 2019**

**B-X**  
**DW-OM**  
**WW-OM**  
**B-OM**

III. Required Items

A. Course Learning Objectives

This program will provide a variety of training topics of value to wastewater and drinking water system operators to assist with their professional development and the enhancement of system operations under their control. Operators will be able to attend training sessions that will seek to convey new material relevant to their industry/operation, increase the depth of their knowledge relevant to basic operations of their facility, and/or provide a refresher to ensure full protection of human health and the waters of the Commonwealth.

B. Criteria for Successful Completion

Exams will not be given at the conclusion of each training session. However, operators must attend the full session and will receive a sheet that must be stamped by a KWWOA official at the conclusion of each one hour of training. Failure to obtain a stamp will negate the operator receiving credit for a particular session. These stamp sheets will be turned in to KWWOA prior to the operator leaving the Conference and be maintained by the organization. The hours earned by each operator will be documented on a Continuing Education Activity Report and submitted via electronic submittal to the Division of Compliance Assistance.

C. & D. Agenda and Credentials for All Instructors – A timed agenda is provided below, along with a brief description of each session and the instructor’s credentials.

**Monday, April 15, 2019**

**General Technical Sessions**

**8:30 to 9:30 AM**

General Technical –Operator Certification Update (1 hour)

Speaker: Amanda LaFevre, Director, Kentucky Division of Compliance Assistance

Amanda LeFevre has been with the Division of Compliance Assistance and the Department for Environmental Protection since 2006. She served in the Environmental Assistance Branch in the Kentucky Brownfield Redevelopment Program and as Assistant Director for the division before becoming Director in 2018. Amanda specialized in enhancing the educational offerings of the division and its programs which include compliance assistance, operator certification, brownfields and the state's environmental leadership program, KY EXCEL. She serves as the Chair of the Association of State and Territorial Solid Waste Management Officials' (ASTSWMO) Brownfield Focus Group. She earned a bachelor's degree from Brescia University and a Master's Degree in Public Administration from the University of Kentucky. Amanda is a Kentucky native originally from Falls of Rough, Ky. She resides in Lexington with her husband, John.

Session Summary: With the continuing retirement of many Baby Boomers and changes in workplace preferences of our younger generation, the water and wastewater industries face some staffing challenges. While regulations can't fix everything, the Kentucky Department for Environmental Protection is seeking ways to create some flexibility where needed and provide better avenues for those entering the profession with skills and education. This session will cover proposed changes in drinking water and wastewater operator certification and ways the department is working with partner organizations to help address workforce development and staffing challenges.

9:40 to 10:40 AM

General Technical – Division of Water: Organizational, Legislative, Regulatory & Programmatic Priorities (1 hour)

Speaker: Peter Goodmann, Director, Kentucky Division of Water

Peter Goodmann serves as the Director of the Kentucky Division of Water. Mr. Goodmann has worked for the Department for Environmental Protection since 1993, as a manager and as Assistant Director. Mr. Goodmann was appointed the Director of the Division of Water in February 2014. He is responsible for overseeing Kentucky's water regulatory programs, including the Clean Water Act, the Safe Drinking Water Act, the Kentucky Agriculture Water Quality Act and other Water Resources Management programs, including Dam Safety, Floodplain Permitting, the National Flood Insurance Program, Risk Map, and Drought Management and Mitigation.

Director Goodmann is a Commissioner on the Ohio River Sanitation Commission (ORSANCO). He is also a board member of the Association of Clean Water Administrators (ACWA), the Ground Water Protection Council (GWPC) and FEMA's National Dam Safety Review Board. Director Goodmann is also serves on the Kentucky Agriculture Water Quality Authority and the Hypoxia Task Force.

Summary: The Division of Water has reorganized its structure to better carry out its mission. The division has re-created the Drinking Water Branch and the Water Resources Branch. The Drinking Water Branch will include the Compliance Section, which conducts compliance review on SDWA rules, the Technical Assistance Section, which works with PWSs to improve technical capacity and help systems address noncompliance issues with reporting, treatment and distribution, the Laboratory Certification Section which implements the Drinking Water and Wastewater Laboratory Certification programs. Engineering reviews will still be conducted by the Water Infrastructure Branch. The Capacity Development program will be implemented jointly by the Water Infrastructure Branch, the Field Operations Branch and the Drinking Water Branch. The Water Resources Branch (WRB) includes the Dam Safety Section, which implements the dam safety program and the State-Owned Dam Repair

program, the Floodplain Management Section which issues permits and conducts compliance of floodplain permits, the Water Quality Certification Section, which issues certification that federal permits comply with state water quality standards. The WRB also implements the National Flood Insurance Program, and the Risk MAP program.

The Division of Water has a number of priorities, most important of which, is to focus on addressing infrastructure needs, and the operational needs of public water systems. Legislatively, the division is seeking authorization via a Joint Resolution to convene a stakeholder group to identify alternate state and local sources of water infrastructure funding, to update the Water Resources statute (KRS 151) to allow the division to charge fees for actions taken under the statute and require Emergency Action Plans for high- and moderate hazard dams. The division has worked with a sponsor to provide for a Water Well Drillers Assistant authorization.

On the regulation front, the division is working to modernize the Operator Certification regulations, complete the Triennial Review of Water Quality Standards, make changes in 401 KAR Chapter 4 to provide for the issuance of floodplain Permits by Rule (PBR) and Registered Permits by Rule (RPBR) for negligible and minor impact projects. The Division will be proposing to increase the KPDES permit fees to reflect the cost of issuing permits, and amending a regulation to address small, privately owned package WWTPs, as directed by legislation.

Programmatically, the division is working toward updating the Sanitary Survey process to make the survey more valuable to the division and water systems, improve the electronic submittal of compliance reports, MORs, etc., improve the electronic submittal on construction permit applications and plans, and develop a technology-based approach to addressing nutrients in permits. The division is updating its Capacity Development Strategy, which will identify developing tools to address chronic issues, such as operational permits for PWSs and improved operational permits for wastewater systems, that will address issues such as asset management, staffing, and succession planning.

10:50 to 11:50 AM

General Technical – Something Old, Something New, Something Borrowed & Something Blew(1 hour)  
Speakers: Andrew Melnykovich & Michael Nantz, KY Public Service Commission

Andrew Melnykovich is the Director of Communications for the Kentucky Public Service Commission. He is responsible for the PSC's communications with the public and news media. Prior to joining the PSC in 2002, Melnykovich was an independent communications consultant. Melnykovich was the environmental writer for The (Louisville) Courier-Journal from 1990 to 1999. From 1999 to 2001, he was a senior account manager in public affairs at Doe Anderson, Inc., a Louisville advertising and public relations firm. Melnykovich is a graduate of Yale University, holding a Bachelor of Sciences degree in biology and a Master of Forest Sciences from the Yale School of Forestry and Environmental Studies. He also did graduate work at the University of Wyoming. Before coming to Louisville, Melnykovich was the environmental writer and Washington, D.C., reporter for the Casper (Wyoming) Star-Tribune. His journalism honors include a George Polk Award.

Michael C. Nantz has over 20 years of regulatory experience relating to various areas of utility services. Prior to rejoining the Kentucky Public Service Commission in January of 2018, he was a member of the Georgia Public Service Commission staff serving for two years as the State's Program Manager responsible for administration of Georgia's Pipeline Safety Program through a federal grant program for

the Pipeline and Hazardous Materials Safety Administration (PHMSA). Mr. Nantz's experience also includes positions in the private utility natural gas and electric sectors. His current responsibilities include the management of the KY Commission's enforcement program relating Kentucky's Dig Law.

Session Summary: Although the basic requirements of Kentucky's Underground Facility Protection Act have remained the same for more than 20 years, a change this year has led to greatly stepped-up enforcement of the statute as it pertains to natural gas lines. This presentation reviews the statute and explains the Public Service Commission's new enforcement role.

1:15 to 2:15 PM

General Technical –Liquid Chemical Feed for Municipal Water & Wastewater (1 Hour)

Speaker: Brian Gatewood, JAGS Environmental, Inc.

Brian is retired from the City of Williamstown where he served in various capacities from Operator to Water/Wastewater Director for 26 years. He holds a Class III license in WW Treatment, WW Collection, Surface Water Treatment, and Distribution. Brian is currently employed by JAGS Environmental as a Sales Representative covering owners and end users in Kentucky and Southern Ohio.

Session Summary: The presentation will cover diaphragm and peristaltic metering pumps showing the advantages and disadvantages of each pump as well as what applications are suitable for each pump. It will also cover ancillary equipment that is used with the metering pumps such as calibration columns and pulsation dampeners.

3:15 to 4:15 PM

General Technical – Cyber Security as a Team Sport!(1 hour)

Speaker: Jeff Harlan, United Systems & Software

Jeff Harlan has been with United Systems for the last 5 years. Jeff has over 25 years in the IT and software industry with certifications from Microsoft, Cisco, Citrix and others. Jeff has been responsible for hundreds of network installations including datacenter designs, which include hundreds of servers and thousands of workstations. Jeff was the managing partner at WWL Network Solutions which was purchased in 2006 by WinScribe, a global company in the speech dictation space. He was subsequently added to WinScribe's board of directors and eventually named CEO for U.S. operations. His technical and business management experience are an added benefit for our customers and partners when seeking best in class solutions for the problem resolutions they are working to solve.

Session Summary: In today's world, going it alone when it comes to the security of your network creates extreme risk for your organization. Network security requires all departments to work together to keep your customers and your data secure from outside threats. In this presentation, we identify threats and provide related strategies to help your team become cyber resilient.

4:20 to 5:20 PM

General Technical – Kentucky Infrastructure Authority Updates (1 Hour)

Speaker: Donna McNeil, Kentucky Infrastructure Authority

Donna McNeil was appointed the Executive Director of the Kentucky Infrastructure Authority on February 16, 2017. Donna graduated valedictorian from Lawrence County High School in Louisa, Kentucky and received a Bachelor of Science Degree in Civil Engineering from the University of Kentucky. She holds an Engineer-in-Training certification from the Kentucky Board of Licensure for Professional Engineers and Land Surveyors. In 2008, she retired from state government with over 22 years of service. During her tenure she managed the Kentucky drinking water program. From 2013 to 2017, Donna worked as a compliance specialist with Kentucky Rural Water Association, providing technical assistance to water utilities. She is a member of both the Drinking Water and Wastewater Advisory Councils for the Kentucky Division of Water. She is also a member of the US EPA/State SRF Work Group and the Kentucky Water Resources Research Institute Committee on Research and Policy.

Session Summary: This session will address how to fund equipment through KIA including an overview of how to fund large equipment available from the Kentucky Surplus Property federal program. A list of eligible equipment, applicants, and funding terms will be provided.

She will also provide KIA Updates to include an overview of the funding programs available, the types of projects eligible, and important facts to assist potential borrowers in receiving priority for their infrastructure project.

### Drinking Water Technical Sessions

10:50 AM to 11:50 AM

Drinking Water Technical – Drinking Water Updates(1 Hour)

Speakers: Joe Uliasz, Kellee Husband & Rodney Ripberger, Division of Water

Mr. Uliasz studied electrical engineering and environmental science which lead to a career in drinking water operations. Mr. Uliasz became a Class B certified drinking water operator in Florida and operated a 16 MGD treatment plant. Then his family later relocated to Kentucky where he received his certifications for Class IVA water treatment plant operator as well as Class IIID water distribution. He served as a water plan operator at Georgetown Municipal Water and then took a position as the manager for the Beech Fork Water Commission in Clay City, Kentucky. Subsequent to his employment as a water plant operator he has worked for and owned companies that sold, installed and trained operators on equipment used for the treatment of both drinking water and wastewater. In all of these positions, Mr. Uliasz gained a great deal of experience in plant operations, chemical treatment, water distribution, employee/operator training and customer service. Mr. Uliasz is also a U. S. Army veteran. He is now the Supervisor of the Technical Assistance Section and acting Supervisor of Compliance for the Drinking Water Branch within the Division of Water.

Kellee Husband graduated from Kentucky State University with a Bachelor of Science in Biology with a Minor in Chemistry, and received her Master's in Health Administration, and is currently a Doctoral Candidate in Health Administration. Kellee joined State Government in 2005 and has worked for Division of Water since 2007 as a Rule Manager in the Compliance Section of the Drinking Water Branch Kellee manages Stage 2 DBP Rule, LT2 IESWTR and now the Lead and Copper Rule.

Rodney Ripberger graduated from Kentucky State University with a Bachelor of Science in Biology and a Master of Science degree in Environmental Studies. He has been a compliance officer with the Division of Water in the Drinking Water Branch's Compliance Section since 2012. Rodney manages the Revised Total Coli Rule (RTCR) and Ground Water Rule (GWR).

Session Summary: This session will address the following issues within the drinking water program:

- Disinfection Byproduct update,
  - Lead and Copper update,
  - RTCR Level I assessments, and
  - Technical Assistance and Area Wide Optimization Program.

#### 1:15 to 2:15 PM

Drinking Water Technical – How to Avoid Monitoring & Reporting Violations(1 Hour)

Speakers: Joe Uliasz & Tekoyia Brown, Kentucky Division of Water

See Mr. Uliasz's bio above.

Tekoyia Brown started working for the Commonwealth of Kentucky in June 2013 where she adjudicated unemployment claims. In March 2014, she accepted a position with the Groundwater Section, in the Watershed Management Branch with the Division of Water (DOW); she continues her work for the DOW as the Monthly Operating Reports (MOR)/Surface Water Treatment Rule manager, in the Drinking Water Branch. Tekoyia Brown received a Bachelor of Science in Biology, with a Minor in Chemistry, from Kentucky State University in May 2013. Also, from Kentucky State University, she received a Master's in Public Administration, with a specialty in Human Resource Management in May 2017.

Session Summary: This session will outline and address how to avoid monitoring and reporting violations, such as:

- Frequent issues with MORs, fully complete a MOR,
- Compliance and sampling, and
- Mail issues and an update on Electronic submittal.

#### 3:15 to 4:15 PM

Drinking Water Technical – Fire Hydrant Maintenance & Operation(1 Hour)

Speaker: Luke Darby, EJ USA

Luke Darby is a Technical Sales Specialist for EJ covering Ohio, Kentucky, and West Virginia. Luke works in conjunction with both the Columbus and Cleveland, OH offices for EJ. With over 10 years in the construction industry, Luke helps cities and engineers to develop solutions for their infrastructure needs. He oversees training for licensed operators, engineers, and architects and works in conjunction with KRWA, KWWOA, ORWA, Ohio EPA, and WVRWA. He has also been working on fire hydrants and gate valves for 10 years, helping municipalities develop and maintain operating and maintenance standards for their water distribution systems. Luke also has earned the OSHA 30-hour safety certification. He holds a BS degree in Construction Management from Brigham Young University, Idaho. He lives in Lebanon, Ohio and has been married for 14 years to his wife Kate and has two children – Matthew and Jennifer.

Session Summary: This course will teach important facts and basics related to the operation and maintenance of fire hydrants. Attendees will be exposed to components, installation, operation,

flushing procedures, trouble shooting, and specification basics. A fire hydrant cut-away will be used throughout the course to aid the learning process.

4:20 to 5:20 PM

Drinking Water Technical – Basic Requirements and Common Errors of CCRs & Public Notices (1 hour)  
Speaker: Maggie Mahan, KY Division of Water

Maggie Mahan is currently the Consumer Confidence Report (CCR) and Public Notice (PN) Rule Manager for the Compliance section of the Drinking Water Branch within the Kentucky Division of Water. She has both her bachelor and master degrees in Biology, with an emphasis on wildlife ecology. Over the last six years she has worked in drinking and wastewater in a variety of capacities such as stream restoration projects, overseeing the Water/Wastewater Technician Training Institute's Associate Degree Program through Western Kentucky University, running sections of and whole certified labs, and now Drinking Water Compliance.

Session Summary: This session will outline the basic requirements and common errors of CCRs and Public Notices, including:

- Covering content,
- time requirements,
- proper completion of certifications, and
- delivery methods and more.

Tuesday, April 16, 2019

### General Technical Sessions

8:00 to 9:00 AM

General Technical – From High School to Highly Skilled – Akron's Utilities Intern Program(1 Hour)  
Speaker: Brian Gresser, P.E., City of Akron

Brian Gresser has 29 years of experience in wastewater collection and treatment. He is currently the Manager of Water Reclamation Services for the City of Akron, overseeing all sewage collection, treatment, and stormwater activities. He has published numerous articles about how Akron has leveraged technology and revised its work practices to become a recognized leader in providing efficient and effective wastewater treatment services for their customers. He is a registered professional engineer in the State of Ohio and is also a Class IV Operator of Wastewater Works in the State of Ohio. He received his Bachelors of Science in Mechanical Engineering from the University of Akron.

Session Summary: The City of Akron Water Supply and Reclamation Bureaus, like an ever-increasing number of public utilities, are feeling the impact that aging baby-boomers are having on the workforce

as they retire from employment. Additionally, the majority of the up and coming workforce targets their career path towards the private sector, being driven by an entirely different set of values as compared to previous generations of utility workers. The result is that public utilities are facing a severe shortage of qualified applicants in their candidate pool.

The City of Akron utility bureaus went through a re-engineering process in the early 2000s. Changes in the organizational structure, work practices and technology were implemented. Staffing reductions realized through natural attrition, coupled with selective hiring city-wide due to a declining tax base, made it very clear that the utility required a succession plan to ensure a continuing flow of young, entry level employees that have the ability and desire to excel in this industry.

The City devised and implemented a high school Utilities Intern program in partnership with the Akron Public Schools (APS). The City of Akron Utilities Intern program is designed to fill a business need and identify talented potential future employees while providing practical work experience that enhances a student's academic background and professional skills. This presentation will discuss how the program was developed, who was involved, the major components of the program, buy-in, mentoring, challenges, and results over the 12-year history of the program.

9:05 to 10:05 AM

General Technical – You Want To Buy What?!?(1 Hour)

Speaker: JC Spalding, 502 Equipment

JC Spalding is the owner of 502 Equipment based in Louisville. 502 Equipment is a full-service Vacuum Truck & Pipe Inspection Equipment dealership, selling equipment to municipalities and contractors in the Utility industry. Born and raised in New Haven, KY, JC is a 2010 graduate of Centre College and also holds a Master's in Business from the University of Louisville. Don't be mistaken, JC still leads Kentucky Blue. JC is a proud Husband and father of a 4-year-old son. JC has been in the industry for 8 years and started 502 equipment 2 years ago.

Session Summary: Equipment & technology used by utilities today have come a long way. No different than the transition from rotary phones to iPhones, equipment to clean and maintain sewer pipes, to locate and uncover buried utilities etc., have all advanced at an equal pace. Yet for some reason, the adoption of such technologies & equipment hasn't quite happened like the adoption of our smart phones. Why is that? Why are we still doing things the hard way? Or even worse, not doing them at all... This presentation will seek to highlight some of these new advancements and hopefully shine the spotlight on the tools & resources available to Kentucky utilities today.

During this session we will review the following:

- Different functions and uses for a vacuum truck. How a utility justifies the purchase of a truck by utilizing it across multiple departments,
- where to find new equipment. Who and what is available to Kentucky utilities, and
- different applications and uses of CCTV equipment. How it can help a utility move in to modern times with its water & wastewater management programs.

10:10 AM to 11:10 PM

### General Technical – GPS Mapping and Your System (1 hour)

Speakers: Adam Scott, Cann-Tech Engineering, Rusty Anderson, TerraGraphics, LLC & Josh Pedigo, Green-Taylor Water District

Adam Scott has over ten years of experience in the water and wastewater industry, specifically with project development, project administration, and funding. Most recently, Adam worked for the Kentucky Infrastructure Authority, where he served in many roles, including Resource Analyst, Staff Assistant, and Secretary for the Board of Directors. While at KIA, Adam worked to enhance the Water Resource Information System (WRIS) to better serve the water and wastewater utilities of the Commonwealth. Adam has experience working with numerous funding sources, including KIA State Revolving Funds, Appalachia Regional Commission (ARC), Community Development Block Grant (CDBG), USDA Rural Development, State and Federal Appropriations.

Prior to joining KIA, he worked four years as the Water Management Coordinator for the Purchase Area Development District. Adam has a Bachelor of Science in Public Administration and a Master of Public Administration, both from Murray State University.

Rusty Anderson is the owner and operator of TerraGraphics, LLC. Created in 2017, TerraGraphics focuses on providing GPS field work and ArcGIS Online consulting to its water, sewer, and gas clients. Prior to starting TerraGraphics, Rusty worked 12 years as manager of the GIS portion of the Kentucky Water Resource Information System (WRIS) at Kentucky Infrastructure Authority (KIA). Rusty was integral in providing GPS services to a large number of water and wastewater utilities throughout Kentucky as KIA expanded their GIS data. Rusty has a BA in Geography from the University of Kentucky (UK) and has completed numerous levels of training for a wide variety of ESRI GIS and Trimble GPS Products.

Josh Pedigo is a graduate of Lindsey Wilson College. Josh has worked as a Drinking Water and Wastewater Operator at the City of Elizabethtown, earning his drinking water treatment class IIIA certification. He has worked for the KY Division of Water as an Environmental Scientist and recently became the General Manager of the Green-Taylor Water District.

Session Summary: Many water and wastewater systems have benefited from the GPS efforts of the Kentucky Infrastructure Authority and other nonprofit organizations. Now that the data has been collected, what are you supposed to do with it? With a little assistance and a willingness to learn, systems can effectively take a big step to utilizing the information to cut cost and provide better service. During this presentation, you will see how communities are incorporating GPS and GIS into their daily operating procedures at a minimal cost.

11:15 AM to 12:15 PM

### General Technical – Pumping Systems – Hydraulics and Design (1 hour)

Speaker: Mike Rudisell, P.E., HDR

Mike has 20 years of experience in the design and construction administration of water/wastewater treatment, storage, and conveyance systems. Mike has specialized in project management of multi-disciplinary projects where coordination of civil/site, process, architectural, HVAC, plumbing, electrical, and instrumentation was paramount for efficient project delivery. Mike serves as a Senior Project Manager and Section Manager for HDR's Water Business Group in their Louisville, Kentucky office. Mike holds Bachelor and Master of Science degrees in Civil Engineering from Ohio University in Athens, Ohio.

Summary: The presenter will review the various pump types typically utilized in our industry and provide an overview of pump hydraulics and associated calculations including a pump selection approach. The application of variable frequency drives; multiple pumps in operation (both parallel and series arrangement); and calculations to estimate pump operation costs will also be discussed. In closing, three (3) applicable design examples will be presented to demonstrate to the audience the principles that were discussed.

2:00 to 3:00 PM

General Technical – Building the Utility of the Future(1 hour)

Speaker: Jeff Eger, HDR

Jeff Eger is the Director of HDR’s Stormwater Business Class and Senior Management Consultant for the Water & Natural Resources business group. He is a nationally recognized leader in utility management who has been on the forefront of innovative practices throughout his 22-year career in the industry. Jeff served as Executive Director of the Water Environment Federation, developing a new strategic direction for WEF, focusing on raising awareness of the value of water. Mr. Eger spent 17 years as the Executive Director of Sanitation District No.1 of Northern Kentucky. In that role, he led the successful merger and consolidation of 34 local governments sanitary and storm sewer systems. He holds a Bachelor of Arts, Communications from Northern Kentucky University.

Session Summary: In 2013 the Water Environment Federation (WEF), the Water Environment Research Foundation (WERF), and the National Association of Clean Water Agencies (NACWA) released “*The Water Resources Utility of the Future: A blueprint for Action.*” This presentation will discuss the findings, conclusions and recommendations from that report. Every utility faces its share of challenges. Some of these can vary by region and geographical location; too little water in some areas of the country, and too much water in others. All utilities are facing mounting pressure to reduce costs, yet still need revenue to maintain and replace their aging infrastructure. Many of the utility’s assets are reaching their useful life.

However, some utilities have found ways to reengineer themselves:

- \* Reclaiming and reusing water
- \*Extracting and finding commercial uses for nutrients and other constituents
- \* Capturing waste heat and latent energy in biosolids and liquid streams
- \* Generating renewable energy using its land and other horizontal assets
- \* Using Green Infrastructure to manage Stormwater to reduce overflows, runoff pollution and improve quality of life more broadly

The presenter will discuss and share examples of how utilities can reinvent themselves starting with developing the worker of the future. Untapping the innovation and creativity from within allows the utility to create their preferred future. While many utilities are rebranding themselves, the secret is in possessing good “brand Behavior.” Start the rebranding internally by renaming many of our class of worker and processes. How do you walk the talk, and have your employees become raving fans of their own utility? Unlock the synergies that might exist within your own community by creating collaborative

partners. Finally embrace transparency and disclosure to gain the trust and respect of the community you serve.

3:05 to 4:05 PM

General Technical – Area Development Districts – What You Need to Know About Your Regional Planning Agency (1 Hour)

Speakers: Joshua Farrow, Gateway Area Development District & Jennifer McIntosh, Kentucky River Area Development District

Joshua Farrow is the Executive Director of the Gateway Area Development District (ADD) in Morehead, Kentucky. Gateway ADD serves Bath, Menifee, Montgomery, Morgan, and Rowan Counties. Hired in March 2010 as the Planning/Geographic Information System (GIS) Coordinator at Gateway ADD, he was promoted to Associate Director for Project Development and GIS in March 2016. He has served in his current capacity as Executive Director since June 2018. Josh has earned a Bachelor's degree in Geography from Morehead State University and a Master's degree in Geospatial Science and Technology from North Carolina State University. During his tenure, Josh has worked on and overseen numerous infrastructure and GIS related projects for local governments and water and wastewater entities in all five counties that Gateway ADD serves. Josh currently resides in Montgomery County with his wife Sarah and their two dogs.

Jennifer McIntosh is the Water & Wastewater Planner for the Kentucky River Area Development District in Hazard, Kentucky. She began her tenure at KRADD in 2008 and currently serves on the KAMP Board of Directors. In addition to water and waste water planning, Jennifer has written a plethora of federal grants and secured funding for a number of infrastructure and economic development projects, among others, for local government entities throughout Eastern Kentucky. She also launched a training program in the KRADD region to assist local water and waste water utilities and officials in obtaining their required Continuing Education Credits. Jennifer holds an Associate of Arts Degree from Hazard Community & Technical College and a B.B.A. in Human Resource Management from American Intercontinental University. She has a 13-year old son, a 10-year-old daughter, a dog, and more indoor and outdoor cats than she can count.

Session Summary: For five decades the 15 Area Development Districts (ADDs) have been charged with planning, promoting, and coordinating programs for regional economic and social development. In this session you will learn a brief history of the ADDs and the core services they provide to their citizenry. The session will focus on the ADDs' water and wastewater planning program which includes: Senate Bill 409, partnership with the Kentucky Infrastructure Authority, Water Resource Information System (WRIS), Water Management Councils, infrastructure funding sources, project development and administration, and mapping and GPS services.

### Drinking Water Technical Sessions

8:00 to 9:00 AM

Drinking Water Technical – The Science of Water Quality in Tanks( 1 Hour)

Speaker: Jonathan Cummings, WASCON

Jonathan Cummings has been with WASCON for the past 14 years. He covers Aftermarket Sales & Service in Tennessee & Kentucky. Jonathan's experience with WASCON started out working on small grinder pumps at WASCON's service shop. From that point, he started doing service and sales calls to collection operators. Jonathan spent two years in inside sales where he learned to properly size pumps and systems in the wastewater market.

Session Summary: The class will outline the issues with water quality within water storage tanks. Starting with the impact of same discharge and Inlet points and how they impact water quality or mixing. The class will go into what testing should be done to check your chlorine levels and the age of the water throughout the tank. Along with the water quality, we will cover what methods that are available to properly mix the water and the issues that are sometimes associated with them.

In comparing mixing systems, the main thing that we will focus upon is the difference between passive systems and active systems. Asking and finding out what is the 10-year life cycle to maintain a mixing system in your tank.

9:05 to 10:05 AM

Drinking Water Technical –Lead & Copper Control(1 hour)

Speaker: Darin Skutt, Carus Corporation

Darin Skutt has worked for Carus Corporation for 19 years with the last 4 years as the Technical Service Manager. As the Technical Service Manager, Darin conducts laboratory testing and product demonstrations for Carus Corporation municipal, industrial, and environmental customers and prospective new customers. These product demonstrations include technical training, safety presentations, and installation of safe chemical handling and dosing systems. He is a graduate from Illinois Wesleyan University, Bloomington, IL with a BS degree in Chemistry, ACS Certified. Mr. Skutt is a member of AWWA, Water Environment Federation, and the American Chemical Society.

Session Summary: This presentation will cover the current lead and copper rule and compliance with it. The different types of phosphate products available on the market for both sequestration and corrosion control will be discussed along with case studies detailing success with these products. Lead and copper studies including coupon rack data as well as lead service line loop data will be discussed for various phosphate products. Finally, safety, handling, feeding, and monitoring of phosphate products will be shown in various plant applications.

10:10 to 11:10 AM

Drinking Water Technical – The Role of Smart Tanks in Distribution Water Quality Management (1 hour)

Speakers: Ethan Brooke, UGSI Solutions

Ethan Brooke is an internationally recognized expert on aeration technologies for trihalomethane (THM) removal. His master's thesis on THM aeration was published in the Journal American Water Works Association and resulted in three patents which are held by the University of New Hampshire. Ethan has a background in civil engineering and product management and has worked on a variety of water, wastewater and distribution system infrastructure improvement projects.

Session Summary: With the promulgation of the EPA's Stage 1 and Stage 2 Disinfection Byproduct Rules, water treatment operators and utilities scrambled to ensure compliance with THM limits and

more carefully monitored chlorine dosing – or switched to the more persistent (long-lived) chloramine as a secondary disinfectant – which had a much lower propensity to form THM's. However, a new problem then became more apparent - residual chlorine (and other disinfectants) may also react further within the distribution network forming DBP's —both by further reactions with dissolved naturally occurring organic matter and with biofilms present in pipes and tanks. In addition to being highly influenced by the types of organic matter in source water, species and concentrations of DBPs vary according to the type of disinfectant used, the dose of disinfectant, the concentration of natural organic matter and bromide/iodide, the time since dosing (i.e. water age) and temperature. The emergence of “smart tank” design and operations provides utilities with the ability to utilize water storage tanks as water quality intervention points. Tanks provide the perfect intervention point to solve THM spikes and low disinfectant residuals, but it all starts with powerful mixing. By revisiting water storage resources as intervention points, overall treatment can be optimized with the added potential for reducing treatment plant costs as they relate to THM reduction and disinfectant residual levels.

This presentation will examine the under-utilized water storage tank as an asset that can be used to improve distribution water quality with several methodologies. Several cases studies that illustrate “smart tank” technology improving chlorine residuals, reducing THM's and maintaining chloramine residuals will be included in the presentation.

11:15 AM to 12:15 PM

Drinking Water Technical – The Truth About Jar Testing for TOC Removal (1 Hour)

Speaker: Bob Cashion, S4 Water Sales & Service

Robert K. (Bob) Cashion is a Nationally Certified Water Technologist, he holds class IV Water & Wastewater operators licenses in multiple states and has been providing water & wastewater related training for over 4 decades. He is the Business Development Manager for S4 Water Sales & Service, and is involved extensively in potable water, wastewater and industrial chemical treatment applications, as well as, operations and maintenance issues of filtration systems and water quality assessment projects on a worldwide scope. He is an active member in the AWWA and NRWA and various State associations. He has a BS degree in Environmental Health & Technology from Missouri Southern State University and is a graduate of the Water & Wastewater Technical College, Neosho, MO.

Session Summary: The use of TOC removal as a surrogate for Disinfection by Product reduction is one of the tools that operational personnel can use to determine the optimized dosing of pre-oxidants, coagulants and post disinfection to determine what process adjustments can be made to provide the greatest reduction in organic matter in finished water. Jar testing procedures will be explained to improve operational techniques on jar testing protocol, as well as testing actual TOC of in-plant jars or experimental jars to improve removal efficiency and verification of TOC's in the finished water.

2:00 to 3:00 PM

Drinking Water Technical – Louisville Water Company Crescent Hill Clearwell Condition Assessment & Rehab Project(1 Hour)

Speaker: Kevin Brian, P.E., HDR

Kevin Brian is graduate of the University of Kentucky with a Bachelor of Science degree in Civil Engineering. He is a licensed professional engineer, Sr. Project Manager and technical advisor for HDR Engineering, Inc. He has over 30 years of experience in the planning, design, project management and

construction of various water and wastewater projects, including collection and interceptor sewers, distribution and transmission main pipelines, pumping stations and water storage facilities, ranging in size from \$500k to \$20M. He has been married to his wife Sarah for 20 years, has three boys, and enjoys spending time with his family, watching college sports and playing a little golf.

**Session Summary:** The Louisville Water Company (LWC) like other utilities is facing the challenges of either replacing or rehabilitating aging infrastructure and facilities and at the same time keeping water rates down.

The Crescent Hill Filtration Plant (CHFP) 20 MG clear well, constructed in 1904, is an asset approaching 114 years in age. This presentation will cover LWC's approach for performing condition assessment and visual inspections of the clear well's four chambers and the implementation of several rehabilitation projects to extend the asset life, while maintaining service from the clear well.

The presentation will review the findings of the condition assessment, details of the visual inspection, repair recommendations and challenges encountered during the rehabilitation work. This proactive approach has allowed LWC to extend the asset life of the clear well chambers for many years without major expenditures.

**3:05 to 4:05 PM**

**Drinking Water Technical – Controlling and Reducing Disinfection By Products(1 Hour)**

**Speaker:** Mike Ricks, Water Resources Unlimited

Mike Ricks is the President of Water Solutions Unlimited. He holds a BA in Economics from Wabash College. He has been with Water Solutions Unlimited since 2010.

**Session Summary:** This session will identify why disinfection-by-products show up in a water system. He will also review solutions to reduce chlorine and organics in the treatment plant and the distribution system. We have found that reducing those two parameters play a critical role in lowering TTHMs and HAAs. The discussion will include proper coagulation oxidation, carbon use, and managing distribution systems with products that can remove biofilm.

### **Laboratory/General Technical Sessions**

**8:00 to 9:00 AM**

**Laboratory/General Technical – Sampling and Preservation Techniques (1 hour)**

**Speaker:** Rhonda Baker, Beckmar Environmental Laboratories

Rhonda Baker works for Beckmar Environmental Laboratory and is a Certified Microbiologist for drinking water. Prior to joining Beckmar in 2002, she worked two years for McCoy & McCoy Laboratories, Inc. Rhonda attended Eastern Kentucky University, Richmond, Kentucky where she earned a Bachelor of Science/Environmental Resources with a minor in Environmental Health Science. She is a member of KWWOA and the Southern Indiana Operators Association.

**Session Summary:** This session will address sample collection for wastewater and drinking water, including:

- methods of collection and where to collect
- preservatives
- containers
- organics
- secondary's
- hold times
- mercury
- cause of blue baby syndrome

#### 9:05 to 10:05 AM

Laboratory/General Technical – Essentials of pH Measurement (1 hour)

Speaker: Timothy Meirose, Thermo Scientific

Timothy Meirose has 30+ years in the laboratory/process markets, providing training and consulting for electrochemistry applications.

Session Summary: This session will address the Nerst Equation, theory of pH, how to choose the correct electrode, how electrodes measure, calibration and troubleshooting.

#### 10:10 to 11:10 AM

Laboratory/General Technical – KY DOW Laboratory Certification Program Update 2019 (1 hour)

Speaker: Patrick Garrity, KY Division of Water

Mr. Garrity is an Environmental Scientist with the Kentucky Division of Water. He has over 30 years of experience working in the environmental chemistry field. Mr. Garrity holds a bachelor's degree in chemistry and master's degree in computer science. He is EPA certified as a Drinking Water Certification Officer.

Session Summary: A complete update of both drinking water and wastewater programs for 2019 will be presented. The overview will include all applicable revisions to State and Federal regulations that are currently in effect.

#### 11:15 to 12:15 PM

Laboratory/General Technical – Proficiency Testing: A Survival Guide(1 hour)

Speaker: Fred Anderson, Advanced Analytical Solutions, LLC

Mr. Anderson holds a Bachelor of Science degree in chemistry from the University of Pittsburgh and a Master's of Science degree in Bio-analytical Chemistry from the Ohio State University. He has over 35 years of experience in the environmental analysis industry. He is the Managing Partner of Advanced Analytical Solutions, which is an ISO 17043 certified company founded in 1992 and is a world leader in the production of Proficiency Testing and Quality Control Standards. Advanced Analytical Solutions is a customer-driven company that makes customer satisfaction its number one goal before and after the sale. It is a quality-oriented company that provides the highest quality Proficiency Testing and Quality Control samples available worldwide.

Summary: The anxieties lab techs endure during PT testing time will be addressed. Tips and tricks to make life easier for lab analysts. Explain how QA/QC samples are made, and the process involved with the providers testing the samples. Discuss the outstanding client support Advanced Analytical Solutions is known for, and the stringent rules all certified PT providers are governed by.

2:00 to 3:00 PM

Laboratory/General Technical – Proficiency Test (PT) Studies: A Handy Guide (1 hour)

Speaker: Beth Jenkins, KY Division of Water

Mrs. Jenkins is an Environmental Scientist for the Kentucky Division of Water, working in the Laboratory Certification Section. She has almost five years of experience working with environmental laboratories in Kentucky. Last year, she became EPA certified as a Drinking Water Certification Officer.

Session Summary: The presentation will be an overview of the role Proficiency Test (PT) Studies play in wastewater and drinking water laboratory certification, as well as common issues laboratories face concerning PTs, and KYDOW's current and future data management system for PT tracking.

3:05 to 4:05 PM

Laboratory/General Technical –Laboratory Ethics (1 Hour)

Speaker: Archie Fugate, McCoy & McCoy Laboratories

Mr. Fugate earned a BS Degree from Pikeville College in 1980, with a Major in Biology, minor in Chemistry. He attended and earned a Master of Divinity Degree from Louisville Presbyterian Theological Seminary in 2008.

After graduation from Pikeville College, Mr. Fugate taught for a year and served also as a consultant for the CITAC (Coal Industry Technical Assistance Center). After a year, he began working for McCoy & McCoy Laboratories, Inc. as the Water Laboratory Manager for 15 years in Pikeville. During that time, the laboratory capabilities expanded from basic wet chemistry analysis to include metals analysis by atomic absorption, PCB and TTHM by GC, WET analysis and coliform analysis. In 1996, he was promoted to the Quality Assurance Officer for the company and moved to Madisonville and in 2000 became the Safe Drinking Water Manager until 2005.

In 2005 he McCoy & McCoy Laboratories to pursue a degree a Master of Divinity Degree and served as a full-time pastor until 2017. I returned to McCoy & McCoy in April 2017 and currently serve as a project manager for Safe Drinking Water.

Session Summary: This session will address Laboratory ethics including proper procedures and accurate record keeping which is essential. It will include a real-life example of where the speaker was called to testify in a Federal Court Case regarding a local utility's sample data.

**Water Mobile Technical Sessions – Exhibit Hall** – KWWOA has lined up 4 vendors who will provide 15-minute mini technical sessions at their booths. Outlined below are the vendors that are participating along with their abstracts and bios:

8:00 to 9:00 AM

1. Water Technical – Ultrasonic Large Metering (15 minutes)  
Speakers: Chris Boyd & Scott Bradley, Ferguson Waterworks

Chris Boyd - AMI Specialist for Ferguson Waterworks. Chris has been at the company over 12 years in different sales roles and is now 100% meter and automation focused. He has attended numerous trainings on ultrasonic metering and presented on the topic a number of times.

Scott Bradley - Territory Manager for Master Meter. Has been with Master Meter for over 17 years in software and automation as well as sales. Master Meter has offered a large ultrasonic meter for almost 10 years.

Session Summary: This session will review the following:

- What is ultrasonic metering technology,
- What advantages does it have over traditional C&I meters,
- What are the benefits to my utility by switching to ultrasonic large meters, and
- Real world ROI case studies.
- 

2. Water Technical – TOC Monitoring in Real Time (15 minutes)  
Speaker: Bob Cashion, S4 Water Sales & Service

See Bio Above.

Session Summary: This session will provide hands on Testing for TOC's in Real Time Monitoring. This session will address the importance of TOC's in WTP Optimization. Handouts will be provided to show how jar testing, utilizing real time TOC's, can be beneficial in plant optimization.

3. Water Technical – Valve Maintenance & Safe Pipe Cutting (15 minutes)  
Speaker: Rick Brennan, Wachs Utility Products

Rick has been with Wachs for over 10 years, performing valuable instructional information on the importance of maintaining your water infrastructure system and the importance of safely exercising your valves, to be able to open and/or close them in an emergency situation.

Session Summary: This session will review equipment that is used to isolate, exercise & analyze water distribution valves to address valve-turning requirements and safe pipe cutting.

4. Water Technical – Advantages of Itron AMR/AMI (15 minutes)  
Speaker: Daniel Brown, United Systems Software

Daniel Brown is a WKU Graduate and a Class IIID Water System Operator that has worked in the water industry for 12 years. Daniel currently works for United Systems and Software based out of Benton KY.

Session Summary: This session will cover how mobile meter reading (AMR) works, and the advantages of having a drive-by mobile meter reading system. Attendees will learn how Itron's mobile system can help them with leak detection, customer service, and becoming more efficient.

Wednesday, April 17, 2019

### Drinking Water Technical Sessions

8:30 to 9:30 AM

Drinking Water Technical – Metering Pump 101: Pumps, Accessories & Systems(1 Hour)  
Speaker: Tim Grogan, Prominent Fluid Controls

Tim Grogan is the Regional Sales Manager for ProMinent Fluid Controls. He has a bachelor's degree in Business Administration and has over 27 years of experience as a regional sales manager in the water and wastewater treatment industry. This experience includes all stages of process water treatment system design from initial concept to final project completion; application specifications review; project management; manufacturing process and outside sales generation.

Session Summary: This session will address metering pump types, their basic operation and Installation set-up. It will also include a review of components and accessories along with their function to create a complete working system to deliver consistent chemical feed.

9:35 to 10:35 AM

Drinking Water Technical – Water Billing Data Auditing (1 Hour)  
Speaker: Bob Becker, NECO

Bob Becker has been with NECO for 36 years. Our company has represented Neptune water meters, AMR and AMI systems since 1934. We have an installation division that has managed system-wide meter reading upgrades since 1995. We have been certified by Neptune TG to implement and support all of their AMR and AMI systems since 2002.

Session Summary: The AWWA has identified the two main types of water loss as Real and Apparent. Real loss is water lost through main breaks and leaks. Apparent loss covers everything else. It includes meter inaccuracy, but also data issues, non-metered, non-billed and unauthorized consumption of water. We will focus on data issues, particularly with regard to AMR and AMI systems and the information that is exchanged between the meter reading software and the billing software.

10:40 to 11:40 AM

Water Technical –Bacteria in Water Treatment & Distribution Systems (1 hour)  
Speaker: Corey Harper, Hawkins, Inc.

Corey Harper is the Technical Manager for Hawkins, Inc. His responsibilities include contract negotiations, technical assistance, product development, developing Laboratory/SOP protocols, and technical sales for all chemicals supplied to clients.

He has been performing treatment plant operations and chemical applications in the water industry for the past 20+ years. He worked as a water plant operator/manager and in distribution for 2 years.

In 1992, he began his career with a Phosphate manufacturing company located in Beloit, WI. There he learned and taught phosphate chemistry to clients and companies that utilized Phosphate properties for corrosion inhibition and food additives/preservatives.

In 1997, he became a Regional Manager at an internationally known corporation for manufacturing oxidants, catalysts and corrosion inhibitors. His duties included managing a group of sales/technical representatives while performing on-site technical assistance to treatment facilities in KY, TN, NC, SC, GA, FL, NM, CO, AK, AZ, and AK.

In 2006, he started his own water treatment company focusing on plant optimizations, desktop studies, distribution flushing programs, and chemical sales in the water and wastewater industries. His company was solicited and sub-contracted by engineering firms to perform preliminary studies on treatment options and chemical recommendations.

In 2011, he began as a Regional Manager for the largest producer of Aluminum based chemicals in North America. His duties included managing a region of clients and distributors that used/distributed coagulants in KY, TN, NC, SC, and VA. The duties included on-site jar testing, performing chemical trials and conducting educational/technical sessions throughout the region.

#### Session Summary:

- I. Introduction
- II. Pre-Treatment Techniques for Organic Bacteria Removal/Reduction
- III. *Use of Pre-Oxidants/Algaecides*
  - i. *Permanganate*
  - ii. *Hydrogen Peroxide*
  - iii. *Chlorine Dioxide*
  - iv. *Algaecides*
- IV. Absorption/Adsorption with Carbon
  - a. *Selecting the correct carbon for the job*
  - b. *Application Points*
- V. Coagulation of Organic Bacteria
  - a. *Coagulant Selection*
  - b. *Settled water Turbidity (Floc) appearance*
    - a. *Settling vs. Floating*
- VI. Distribution Organic Bacteria
  - a. *Types of Organic Bacteria*
  - b. *Recognizing the Presence of Bacteria*
  - c. *Testing for specific types of Bacteria*
- VII. Eliminating Bacteria in Distribution systems
  - a. *Phosphate application*
  - b. *Bio-Penetration*

- c. *Flushing*
- d. *Chlorine demands*

- VIII. Conclusion
- IX. Question and Answer

#### 1:00 to 2:00 PM

Drinking Water Technical – Replacing Aging Infrastructure: A case study of Frankfort’s 130-Year-Old Reservoir (1 Hour)

Speaker: David Billings, P.E., Frankfort Electric & Water Plant Board

Mr. Billings is a registered professional engineer in the state of Kentucky. He is a native of Apison, Tennessee, a small rural community near Chattanooga. He received a Bachelor of Science degree in Civil Engineering from Tennessee Technological University in 1994 and has spent the majority of his career in the water profession. Mr. Billings is a member of the American Water Works Association (AWWA), National Society of Professional Engineers (NSPE), and a commissioner of the Bluegrass Water Supply Commission (BWSC).

Mr. Billings began his engineering career with American Engineers performing site development work and environmental remediation. In 1996, he became the Engineer/Collection System Manager at Glasgow Water and Sewer Commission in Glasgow, Kentucky. In 2003, Mr. Billings accepted the position of Chief Water Engineer with the Frankfort Electric and Water Plant Board. As the Chief Water Engineer, his responsibilities include: managing the water engineering department, project delivery of treatment and distribution capital projects, planning, and budgeting. In addition, he works directly with the public and elected officials on water related projects and participates on a variety of boards as a water representative for the company.

Session Summary: The class will give a History of the Reservoir and structural issues that have been addressed and the decision to replace the reservoir instead of doing structural repairs due to cost. The class will cover the time line of notifying the Neighborhood of the replacement and the issues faced with the community and where the project stands today. The current property has two 4.6 million reservoirs and the new proposed reservoir will be one 7-million-gallon reservoir that will allow for future growth for the community of Frankfort.

#### 2:05 to 3:05 PM

Drinking Water Technical –Lost Water – A Successful Case Study (1 hour)

Speaker: Paul Nesbitt, P.E., Nesbitt Engineering, Inc.

Paul Nesbitt, a Kentucky registered engineer and land surveyor, has served as President of the consulting firm Nesbitt Engineering since 1976. In this role he is actively involved in addressing water loss problems for the company’s clients. Paul has an engineering degree from the University of Michigan and a Master of Business Administration from Xavier University.

Session Summary: Approximately 16 years ago, the City of Jenkins started planning and subsequently implementing a capital improvements program to address their lost water problems within the water distribution system. This talk will summarize the City's history that led to the failing water distribution system infrastructure, present the results of the planning process, and discuss the implementation issues that were faced. This program led to a massive reduction in lost water, cutting the plant run time to approximately half of what it was before starting this effort.

3:10 to 4:10 PM

Drinking Water Technical – Total Coliform Sampling (1 hour)

Speaker: Chris Wells, Rural Community Assistance Partnership

Chris Wells has worked as a Technical Assistance Provider for Kentucky RCAP since 2001. As a Technical Assistance Provider he has assisted small rural communities with various water and wastewater needs. Prior to RCAP he was a Client Relations Representative, Project Manager, and Field Technician at an environmental engineering company and a Tax clerk for the City of Nicholasville. Mr. Wells has an Associate Degree in Applied Sciences, Business Management. He has 18 years of experience in the field.

Session Summary: Water operators are on the front lines of protecting public health as they are responsible for providing safe drinking water to our communities. To that end, it is critical that operators collect total coliform samples correctly. Improper sampling is the most common reason for positive coliform results. In this session, proper total coliform sample collection will be discussed in detail. Participants will learn how to select a viable sample bottle, accepted practices of preparing/handling samples, how to determine an acceptable sampling site, the importance of chain of custody forms, pitfalls to avoid and helpful hints to remember when sampling, tips for transporting samples to the lab, etc. This session will also touch on how to interpret total coliform sample results and review Level I and Level II treatment technique triggers and forms for the Revised Total Coliform Rule.

#### Back-up Speakers:

Water Technical: **Manage Your Water System with Integrated Pressure & Temperature Sensors in your Meter** (1 hour)

Speaker: Tina Masters-Odum, P.E., Badger Meters

Tina Masters-Odum, P.E. is a Solution Architect for Badger Meter and supports utility customers in the central region of the United States. As a Solution Architect, Tina provides education about Badger Meter products and service offerings to utilities desiring innovative metering solutions. Tina is a Professional Engineer and obtained her bachelor's degree in Civil Engineering from the University of Cincinnati. In her professional career, Tina has worked with both industries and municipalities in water and wastewater applications.

Session Summary: Today's business environment demands informed decision-making. It's essential to provide superior customer service, use our water and energy resources wisely, efficiently manage operations, and achieve regulatory compliance – all while continuing to control revenue and resources. The next generation in ultrasonic and electromagnetic meters as specified in the new AWWA C715-18 standard are designed for high measurement accuracy and long-term reliability with built-in meter alarms to provide early detection of flow, temperature, and pressure disturbance. With this information,

utilities are able to better understand and proactively manage their smart water meter reading systems faster and more efficiently. This presentation will discuss electronic meter technologies and how sensors can support distribution system management and how interval data and smart software can support water efficiency via District Area Metering.

General Technical – Greases & Gear Lubes for Drinking Water & Wastewater Facility Uses (1 Hour)

Speaker: Ken Arnold, Schaeffer Oil

Ken Arnold has worked from 1991 to the present with Schaeffer Mfg., St. Louis, MO and from 1981 to 1991 with Lubrication Engineers in Fort Worth, Texas as a Lubrication Specialist which included:

- Sales of specialized lubricants
- Commercial, Industrial, Government, Utilities, and Agricultural accounts
- Cross reference of lubricants for equipment
- Specify the best possible lubricant for the job
- Demonstrate the lubricity and shock load of lubricants
- Pull samples for oil analysis
- Lubrication Seminars at High Schools, Vocational Schools, & Municipal Government Agencies

Session Summary: This session will address how utilities can make equipment last longer and save money. Specifically, it will address the proper grease and gear lube types to use.