

Date	June 7, 2022	Track 1C -	Treatment
Start Time	8:35 AM	Drinking Wat	er and/or Wastewater Water
End Time	9:05 AM	Length of Session	Half Hour (about 25 minutes with 5 minutes for questions and discussion)

Presentation Title: A Field Guide to Developing a Mains Cleaning Program

Abstract	A look in review o Unidirec	ok into the reasons behind developing a comprehensive mains cleaning program, including a lew of industry standard mains cleaning practices with specific attention paid to directional Flushing(UDF).				
:	Speaker	Michael Hallett	E-mail	michael@confluence-engineering.com		
Speaker's J	ob Title	COO/Field Scientist	Phone			
Orgai	nization	Confluence Engineering Group LLC				
Primary Job	o Duties	Chief Operation Officer at Confluence services related efforts.	in charg	e of business operations and all field		
Registr Cert	ations or ifications	None				



Date	June 7, 2022	Track	1B - Wastewater Regulations (Virtual)
Start Time	8:00 AM	Drinkin	ng Water and/or Wastewater Wastewater
End Time	8:30 AM	Lengt Sess	th of Half Hour (about 25 minutes with 5 minutes for questions and discussion)

Presentation Title: A Process for Identifying Nutrient Optimization Strategies

Abstract This presentation describe a suggested process for coming up with and evaluating optimization activities to meet the requirements of the Nutrient General Permit. Topics covered will include brainstorming ideas, evaluating those ideas, and turning those ideas into specific optimization strategies with documentation, procedures, and analysis. This is intended to help operators by giving them a potential roadmap to meet this permit requirement.

Speaker	Scott Weirich	E-mail	sweirich@parametrix.com
Speaker's Job Title	Water Engineer	Phone	2535015269
Organization	Parametrix		
Primary Job Duties	Design and operational support of wastewater treatment plants		
Registrations or Certifications	Washington State Wastewater Operator, Washington State Professional Engine		



Date	June 8, 2022	Track	1A - A	Asset Management (Hyb	orid)
Start Time	1:45 PM	Drinkin	g Wat	er and/or Wastewater	Water, Wastewater
End Time	2:45 PM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Advancements in electronic O&M Manual development

Abstract This presentation shows how	water and wastewater O&M staff can organize information in an
electronic format to improve	operations and maintenance efficiency and reliability. The
demonstration shows O&M s	taff how simply these manuals can be updated to meet the
regulatory requirements to k	eep the facility O&M manual up to date. The presentation shall also
demonstrate how the manua	l is utilized to train new personnel, maintain institutional knowledge
when seasoned personnel lea	ave service and provides one source for controlled O&M document
distribution. Lastly this prese	ntation shows some of the recent advancement is content that can
be added to the eOM to mak	e the manual more of a daily operating tool.

Speaker	Ed Griffenberg	E-mail	egriffen@hdrinc.com
Speaker's Job Title	Operations Specialist	Phone	14255918436
Organization	HDR		
Primary Job Duties	O&M consulting		
Registrations or Certifications	Washington State Wastewater Opera	tor	



Date	June 7, 2022	Track	1A - Distribution Systems (Hybrid)
Start Time	1:20 PM	Drinkin	g Water and/or Wastewater
End Time	2:20 PM	Lengt Sess	h of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: Aging Water Storage Reservoir Evaluations: Where Do I Begin?

Abstract	This presentation will discuss case studies of the approaches the City of Bellingham and Tacoma
	Water took to develop detailed scoring and assessment rubrics and the field evaluations of 17
	water took to develop detailed scoring and assessment rubics and the neid evaluations of 17
	potable water storage tanks of various construction types and capacities. The presentation will
	discuss the approach and factors considered when creating the scoring criteria, which factored
	input from multiple utility departments and consultants. Attendees will learn specific
	considerations including in-service vs off-line inspection; evaluating the condition of each
	reservoir to establish a baseline; prioritizing and designing repairs and upgrades to ensure safe
	and reliable potable water for the communities; and compliance of repair work.
	Speaker Greg Lewis

Speaker	Greg Lewis	E-mail	greg.lewis@psengineers.com
Speaker's Job Title	Project Manager	Phone	
Organization	Peterson Structural Engineers		
Primary Job Duties			
Registrations or Certifications			



Date	June 8, 2022	Track 2C -	Collection & Distribution	n Systems
Start Time	2:50 PM	Drinking Wa	ter and/or Wastewater	Water, Wastewater
End Time	3:50 PM	Length of Session	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Air Valve Operation, Selection, and Sizing

Abstract Presentation will cover important factors to consider when selecting and sizing air valves in both water and wastewater applications. Will also cover the basics of how air valves work and go over typical maintenance activities to keep them functioning properly.

Speaker	Robert Velasquez	E-mail robert@cimco-gcsystems.com
Speaker's Job Title	Water Management Consultant	Phone
Organization	Cimco-GC Systems	
Primary Job Duties	Consulting with Engineers and Water and Val-Matic specialty valves.	District managers on product selection for Cla-Va
Registrations or Certifications	Factory Trained by Cla-Val	



Date	June 8, 2022	Track 2	C - Collection & Distribution Systems
Start Time	7:30 AM	Drinking \	Water and/or Wastewater Water
End Time	8:30 AM	Length Sessio	of Full Hour (about 50 minutes with 10n minutes for questions and discussion)

Presentation Title: AMI Meter Options

Certifications

Abstract AMI Options: The technology to read water meters is changing rapidly. There are new technologies emerging that have changed the upfront and on-going costs associated with deploying an AMI System. New Technologies like LoraWAN and Cellular AMI may now allow even small systems to afford this technology. This presentation will compare and contrast the different new AMI technologies.

Speaker	Matt Zellers	E-mail	mzellers@muellerwp.com
Speaker's Job Title	Territory Manager	Phone	5033105993
Organization	Mueller Systems		
Primary Job Duties	My primary job responsibility is to we meter and water meter reading techn	ork with U nology fo	Utilities to determine the best water r each unique utility.
Registrations or	none		



Date	June 8, 2022	Track	2C - Collection & Distribution Systems	
Start Time	1:45 PM	Drinking	ng Water and/or Wastewater Water	
End Time	2:45 PM	Lengt Sess	th of Full Hour (about 50 minutes with sion minutes for questions and discuss	10 ion)

Presentation Title: Anatomy of a Service Lateral

Abstract The Anatomy of a Service Lateral course covers products and methods used to transport water from the main to the meter in service laterals 2" and smaller. Saddles, valves, fittings, check valves, and meter setting devices that fall under the AWWA C-800 standard are discussed in this course.

Speaker	Mike McLeod	E-mail	mmcleod@aymcdonald.com
Speaker's Job Title	Western Regional Sales Manager	Phone	
Organization	A.Y. McDonald		
Primary Job Duties	I am responsible for managing 8 of ou distributors, contractors, municipalitie States. For the past 30+ years I have o representing leading manufacturers in markets.	ir Territo es, and e alled on h the wa	bry Managers servicing wholesale and users throughout the Western United municipalities throughout North America ter , wastewater, and storm water
Registrations or Certifications	None.		



Date	June 7, 2022	Track 1	IA - Water Treatment (Hybrid)
Start Time	2:55 PM	Drinking	Water and/or Wastewater Water
End Time	3:25 PM	Length Sessic	of Half Hour (about 25 minutes with 5 minuteson for questions and discussion)

Presentation Title: Capacity through Efficiency - Principles of Clearwell Design

Abstract This presentation will cover the basics of CT, clearwell design and focus primarily on baffles. The presentation will center on the recent Second Clearwell project done by the City of Anacortes where a new clearwell was constructed with baffles and the original clearwell was retrofit to include baffling. This presentation will cover the tracer testing effort for the clearwells and present side by side comparison of unbaffled test results and baffled test results.

Speaker	Kenneth H Packard	E-mail	kenneth.packard@hdrinc.com		
Speaker's Job Title	Water/Wastewater Engineer	Phone	14256158114		
Organization	HDR				
Primary Job Duties	Water and wastewater infrastructure design and construction management				
Registrations or Certifications	Washington State Professional Engine	er			



Date	June 7, 2022	Track	2C - U	Itility Management	
Start Time	12:15 PM	Drinking	g Wate	er and/or Wastewater	Water, Wastewater
End Time	1:15 PM	Lengt Sess	h of ion	Half Hour (about 25 m for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Capital Planning - Role of Operations and Maintenance

Abstract Capital development and capital management are directly linked under an organization's strategic framework for planning. Operations and maintenance data and participation in the capital development stage of budget planning is critical for right sizing water and wastewater system investments; contributing knowledgeable information on existing asset condition and challenges.

Speaker	Lanelle Ezzard	E-mail	lanelle.ezzard@hdrinc.com		
Speaker's Job Title	Water/Wastewater Engineer	Phone			
Organization	HDR Engineering, Inc				
Primary Job Duties	Strategic planning and implementation support for water, sewer and storm water capital infrastructure projects and programs.				
Registrations or Certifications	Washington State Professional Engine	er			



Date	June 8, 2022	Track	1C - l	Jtility Management	
Start Time	3:20 PM	Drinkin	g Wate	er and/or Wastewater	Water, Wastewater
End Time	3:50 PM	Lengt Sess	h of sion	Half Hour (about 25 m for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Chlorine Supply Resiliency: The Unexpected

Abstract The chlorine supply disruption in summer 2021 has shed light to overall resiliency considerations about chlorine and hypochlorite supply chain. This presentation will evaluate supply resiliency and discuss design implications of several source chemicals for chlorination in the Pacific Northwest: chlorine gas, bulk hypochlorite, and salt for on-site hypochlorite generation. This presentation will also share case studies of regional water treatment facilities on their approach to secure future chlorine supplies.

Speaker	Qianru Deng	E-mail	qdeng@carollo.com		
Speaker's Job Title	Project Engineer	Phone	2065365176		
Organization	Carollo Engineers				
Primary Job Duties	Design and management of water treatment facilities				
Registrations or Certifications	California State Professional Engineer				



Date	June 7, 2022	Track	1B - Wastewater Treatment (Virtual)
Start Time	8:35 AM	Drinking	g Water and/or Wastewater Wastewater
End Time	9:05 AM	Lengtl Sess	h of Half Hour (about 25 minutes with 5 minutes sion for questions and discussion)

Presentation Title: Choosing the Right Test for Bacteria in Wastewater

Abstract Options of multiple testing methods for multiple pollution indicator bacteria have "muddies the waters". This presentation will help clarify the regulatory requirements, and match your needed bacterial testing with approved laboratory methods. The steps for adding or changing a microbial method to your Washington laboratory accreditation will also be described.

Speaker	Ruth Powers-Piccone	E-mail	rpic461@ecy.wa.gov		
Speaker's Job Title	Microbiologist Auditor 4	Phone	3602809288		
Organization	WA Dept of Ecology				
Primary Job Duties	As a Microbiologist Lab Auditor for the Department of Ecology, Lab Accreditation Unit, I accredit environmental laboratories to assure they are capable of producing accurate and defensible analytical data.				
Registrations or Certifications	Washington State Wastewater Opera	tor, Regi	stered Sanitarian		



Date	June 7, 2022	Track 1C	- Treatment	
Start Time	7:30 AM	Drinking Wa	ater and/or Wastewater	Water, Wastewater
End Time	8:30 AM	Length of Session	Full Hour (about 50 m minutes for questions	inutes with 10 and discussion)

Presentation Title: Coagulant/Polymer101 - Fundamentals of Clarification and Dewatering

Abstract Title: Coagulant/Polymer101 - Fundamentals of Clarification and DewateringPreparing optimized polymer solution is one of several key components for successful solid-liquid separation in water and wastewater treatment processes. Due to the unique and complex property of polymer, polymer make-down requires well established scientific understanding. This discussion will review the basics of polymer chemistry, dilution water effect, proper way of handling/storage of polymer as well as optimized polymer mixing with case studies. Quality of dilution water including hardness and temperature has tremendous impact on the efficiency of polymer solution. With increasing trend of utilizing reclaimed water for polymer mixing at many WWTPs, chlorine level of dilution water must be carefully monitored due to its oxidative attack on the carbon-carbon bonds of polymer molecules. When reclaimed water is used, aging of polymer solution is to be evaluated because chlorine, suspended solids, and TDS of reclaimed water may react with polymer and result in degraded polymer solution. Benefit of two-stage mixing and sufficient residence time in polymer make-down has been well accepted for a while, and it was clearly shown at the Neshaminy Water Treatment Plant in Philadelphia area. The plant operates at the capacity of 15 MGD to serve about 40,000 population. Two different mixing chambers were evaluated side-by-side in dewatering alum-carbon sludge with two belt filter presses running simultaneously. It was striking to observe that the redesigned mixing chamber with tripled residence time performed 35% better than the other, while yielded to 4% drier cake.Related to optimizing polymer activation/mixing, Jacobs Engineering performed severalmonth long pilot study at the F. Wayne Hill WRC of Gwinnett County, GA. The plant has a rated capacity of 60 MGD and spends approximately \$1.2 million of cationic polymer per year for thickening and dewatering. Three different mixing systems were evaluated for dewatering by monitoring polymer dose required, polymer solution concentration, cake solids, and TSS level of centrate. The result of pilot study demonstrated that an optimally-designed two-stage polymer mixing system was able to reduce polymer consumption by 25%, while produce better quality centrate without sacrificing cake solids.

Speaker	Yong H. Kim	E-mail	ykim@ugsicorp.com		
Speaker's Job Title	Technical Director	Phone	8564055756		
Organization	UGSI Solutions, Inc.				
Primary Job Duties	1. Research and product development.2. Publication and presentations at technical conferences.3. Consultation with engineers and customers.				
Registrations or Certifications	WEF, Active Member of Solids-Separa	ition Sub	committee		



Date	June 7, 2022	Track	2B - P	Planning & Construction	(Virtual)
Start Time	10:15 AM	Drinking	g Wate	er and/or Wastewater	Water, Wastewater
End Time	11:15 AM	Lengt Sess	h of ion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Considerations when anchoring, leveling and grouting rotating equipment

Abstract Vibration and equipment natural frequency has lately caused increased maintenance a premature equipment failure. The traditional methods of anchoring, leveling and grouting rotating equipment is no longer applicable. Manufacturers are making equipment lighter and not as robust to safe steel and be more competitive. What this has resulted in is the natural frequency of equipment now is approaching their natural frequency. Forty and fifty year old motors and pump were stout and very stiff and could tolerate not being exactly level. This equipment could survive many years of operation and abuse. Today's equipment is lighter and it has little tolerance for not being exactly level and secured to a solid base. Using the traditional easy way of installing equipment with leveling nuts and anchor bolts sleeves has compounded the vibration, natural frequency and failure of the equipment. This presentation will present the correct way to anchor, grout and install rotating equipment. Hydraulic Institute and American Petroleum Institute have several examples and procedures to correctly installing pumps which will be presented and explained. Examples of with pictures will be presented on how not to install rotating equipment along with the failure modes encountered.

Speaker	John E Koch	E-mail	jkoch@hdrinc.com		
Speaker's Job Title	Senior PM	Phone	14257731384		
Organization	HDR				
Primary Job Duties	Lead QC reviewer of many water, wastewater and pumping station project, field commissioning, condition assessment of plants and pumping stations.				
Registrations or Certifications	Washington State Professional Engine	er			



Date	June 7, 2022	Track	1A - Distribution Systems (Virtual)
Start Time	7:30 AM	Drinking	g Water and/or Wastewater Water
End Time	8:30 AM	Lengt Sess	th of Full Hour (about 50 minutes with 10 sion minutes for questions and discussion)

Presentation Title: Control disinfectant residual levels in water distribution systems

Abstract This 60-minute seminar will provide water system managers, operators and engineers a practical understanding of the conditions, chemistry and science behind affecting positive control of both chloramine and free-chlorine levels in water distribution systems. Importantly, the second half of the seminar will present a suite of proven technologies that can be employed to automatically control disinfectant residual levels in real world water distribution systems.

Speaker	Ethan Brooke	E-mail	grock@ugsicorp.com
Speaker's Job Title	Regional Manager	Phone	17248143756
Organization	UGSI Solutions		
Primary Job Duties	Expert on aeration technologies for the	rihalome	thane (THM) removal.
Registrations or Certifications	Washington Approved Training Cours	e Sponso	or



Date	June 7, 2022	Track	2B - P	lanning & Construction	
Start Time	12:45 PM	Drinking	g Wate	r and/or Wastewater	Water, Wastewater
End Time	1:15 PM	Lengt Sess	h of ion	Half Hour (about 25 mi for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Control Loops – Basic Principles and How They Work

Abstract	Control loops are a fundamental part of all pumping, valving, and treatment systems. This
	presentation describes what they are and how they work, how to review them, and what are
	best practices for design and operations

Speaker	Pierre Kwan	E-mail	pierre.kwan@hdrinc.com
Speaker's Job Title	Water Treatment Business Leader	Phone	2068264735
Organization	HDR		
Primary Job Duties	Global director of water treatment		
Registrations or Certifications	Washington State Professional Engine British Columbia	er, Profe	essional Engineer - Oregon, New Mexico,



Date	June 7, 2022	Track	2B - I	Planning & Construction	
Start Time	2:25 PM	Drinkin	g Wat	er and/or Wastewater	Water, Wastewater
End Time	3:25 PM	Lengt Sess	th of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Copperhead Tracer Wire: Locating 101

Abstract Will cover installation of locating wire in various utility installing methods including open cut, directional drilling, and pipe bursting. Will also go over best practices for installing wire and using them to located critical buried infrastructure.

Speaker	Erin Sealy	E-mail	erin@cimcopnw.com
Speaker's Job Title	Outside Sales	Phone	
Organization	Cimco		
Primary Job Duties	Outside Sales		
Registrations or Certifications	Factory Trained		



Date	June 7, 2022	Track	1B - (Collection & Distributio	n Systems (Hybrid)
Start Time	12:15 PM	Drinking	g Wate	er and/or Wastewater	Water, Wastewater
End Time	1:15 PM	Lengt Sess	h of ion	Half Hour (about 25 m for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Corrosion and Condition Assessment of Water and Wastewater Pipes

Abstract As evidenced by the continued occurrence of high-profile pipeline and infrastructure failures, improvements in water/wastewater condition assessment and corrosion control programs remain critical areas of need in the U.S. This presentation looks at the state of infrastructure in the U.S., reviews fundamental corrosion mechanisms at work, discusses the role of condition assessment and corrosion control programs, and reviews modern pipeline condition assessment technologies including desktop studies, non-invasive pipeline assessments, pipe external direct assessments, and in-pipe electromagnetic condition assessment and leak detection techniques.

Speaker	Glenn Edgemon	E-mail	glenn.edgemon@hdrinc.com	
Speaker's Job Title	Senior Condition Assessment Project Manager	Phone	15094302799	
Organization	HDR, Inc.			
Primary Job Duties	Glenn Edgemon has over 30 years of corrosion engineering and control experience across a variety of industries. He is certified by NACE International (NACE) as a Corrosion Specialist and Cathodic Protection Specialist (CP-4). At HDR, Mr. Edgemon is responsible for the condition assessment of existing metallic and concrete systems, design for corrosion control, leak detection, failure analyses, and pipeline cathodic protection design.			
Registrations or Certifications	NACE Certified Corrosion Specialist ar (CP-4)	nd NACE	Certified Cathodic Protection Specialist	



Date	June 7, 2022	Track	1C - (Controls	
Start Time	2:25 PM	Drinkin	g Wat	er and/or Wastewater	Water, Wastewater
End Time	3:25 PM	Lengt Sess	th of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Data, Analysis, and the Future of I&C

Abstract This presentation will cover the basics of data monitoring and storage, how various types of data may be used, and different approaches to more in-depth data analysis. Additionally, some long-term developments and trends in instrumentation and controls including near-real-time process simulation, the use of digital twins for design, training, operations, and maintenance, and the potential impacts and insights to be gained from applied machine learning and predictive maintenance will be covered. Content will focus on typical concerns and impacts on operation staff, specifically various design decisions that may limit implementation of future technologies, as well as impacts to plant performance, operations, and maintenance. This presentation is the last in a three-part session and will cover four main topic areas discussed briefly below. For each topic, special considerations, lessons learned, and examples from past water and wastewater projects will be included.

Speaker	Jennifer E Murphy	E-mail	JMURPHY@PARAMETRIX.COM
Speaker's Job Title	NW Water Markets Lead and Smart and Connected Communities, Water & Facilities Lead	Phone	4435069963
Organization	Parametrix		
Primary Job Duties	Jen Murphy is a Sr Consultant, NW Water Markets Lead, and Smart and Connected Communities, Water & Facilities Lead at Parametrix. She has over 15 years of experience in the construction and design industries, with the last 11 years focused on providing clients with engineering to support large drinking water, waste water, and storm water pumping and treatment projects. Jen has played a significant role on design and construction projects at over 35 pumping stations and at over a dozen treatment facilities with capacities from 50,000 GPD to 800 MGD.		
Registrations or Certifications	Washington State Professional Engine	er	



Date	June 8, 2022	Track	1B - Wastewater Treatment (Hybrid)
Start Time	12:15 PM	Drinking	g Water and/or Wastewater Wastewater
End Time	1:15 PM	Length Sessi	h of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: Emerging Solids Technologies

Abstract The presentation highlights emerging solids technology that are developed and implemented in the United States from across the globe. Ranging from thickening technologies, dewatering, polymer reduction capabilities, drying, digestion alternatives, digestion enhancement, and beyond Class A solids minimization. These systems supply viable solutions at cost savings options that can be retrofitted into existing WWTP facilities to meet current and future needs. This presentation will touch on current alternatives to address Emerging compounds of concern (PFAS/PFOA/endocrine disrupters/microplastics/pharmaceuticals).

Speaker	Chris McCalib	E-mail	chris@tec-nw.com	
Speaker's Job Title	President	Phone	2069091546	
Organization	Treatment Equipment Company			
Primary Job Duties	President of TEC			
Registrations or Certifications	r Washington State Wastewater Operator s			



Date	June 8, 2022	Track	1A - A	Asset Management (Hyb	orid)
Start Time	2:50 PM	Drinking	g Wate	er and/or Wastewater	Water, Wastewater
End Time	3:50 PM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Extending the useful life of your existing concrete tank infrastructure

Abstract This presentation will discuss condition assessments, rehabilitation, and retrofit scopes of work on all types of concrete tanks. This includes both water reservoirs, and wastewater storage tanks. The rehabilitation scopes of work can vary from architectural treatment upgrades, crack and leak repair, concrete restoration, and full structural rehabilitation to restore structural integrity. A variety of retrofit options can be installed to increase the tank capacity, improve water quality, repurpose to a different application, provide safety/security/access upgrades, as well as structural seismic retrofits. This presentation will touch on these items and highlight previous case studies.

Speaker	Nick Belmont	E-mail	nick.belmont@dntanks.com
Speaker's Job Title	Pacific Northwest Regional Manager	Phone	
Organization	DN Tanks		
Primary Job Duties	Manage the preconstruction activities concrete tanks.	s for the	design and construction of prestressed
Registrations or Certifications	None		



Date	June 8, 2022	Track 10	C - Utility Management
Start Time	12:15 PM	Drinking V	Vater and/or Wastewater
End Time	1:15 PM	Length o Sessio	of Full Hour (about 50 minutes with 10n minutes for questions and discussion)

Presentation Title: Facility Planning For More Than Capacity

Abstract In 2021, City of Everett completed a Facility Plan for its Water Filtration Plant, which provides water supply to over 600,000 regional customers. This session will focus on the Facility Planning process, including assessment and prioritization of condition, resiliency, and capacity needs. It will describe how technical analyses were paired with operations staff knowledge and concerns to support informed decision making.

Speaker	Casey Gish	E-mail	cgish@brwncald.com
Speaker's Job Title	Staff Engineer	Phone	
Organization	Brown and Caldwell		
Primary Job Duties			
Registrations or Certifications	Washington State Professional Engine	er	



Date	June 7, 2022	Track (1A - Distribution Systems (Hybrid)
Start Time	12:15 PM	Drinking	Water and/or Wastewater Water
End Time	1:15 PM	Length Sessie	of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: GAC 101 - Basics and applications

Abstract I'll provide information on what GAC is, how it's made, and the important parameters that impact performance. I'll then review various applications such as PFAS, biofiltration, and disinfection byproducts

Speaker	Ben Goecke	E-mail	ben.goecke@kuraray.com	
Speaker's Job Title	Technical Sales	Phone		
Organization	Calgon Carbo Corp			
Primary Job Duties	Provide GAC solutions to water utilities			
Registrations or Certifications	N/A			



Date	June 7, 2022	Track 10	C - Treatment
Start Time	10:45 AM	Drinking W	/ater and/or Wastewater Wastewater
End Time	11:15 AM	Length o Sessior	 Half Hour (about 25 minutes with 5 minutes for questions and discussion)

Presentation Title: Going Mag: Learning from the Slurry

Abstract As wastewater treatment plants must contend with more stringent regulatory limits for discharge compliance, maintaining the pH within the biological process has become an important factor for operations. Magnesium hydroxide is a popular choice among operators to balance pH because of its inert nature compared to other chemicals such as sodium hydroxide, which require special care for handling due to their hazardous nature. Magnesium hydroxide is not without its drawbacks, though, as its typical slurry form can create maintenance problems related to clogged pipes, challenging mixing and difficult cleanup. Through talking with operators, engaging with chemical manufacturers, and analyzing failure points, systems can be designed effectively. This presentation will help operators, maintenance staff and engineers implement reliable systems for magnesium hydroxide feed by sharing multiple case studies and lessons learned related to the need for alkalinity addition, considerations when choosing the right chemical, and how to overcome magnesium hydroxide feed system challenges to maintain regulatory compliance.

Speaker Chris Stoll	E-mail	chrisstoll@kennedyjenks.com
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Phone

Speaker's Job Title Project Manager

Organization Kennedy Jenks

Primary Job Duties Chris Stoll is a project manager and project engineer with Kennedy Jenks. Chris has over 10 years of experience managing, designing, and planning sewer and water projects. Chris has been involved with several projects implementing magnesium hydroxide feed systems to balance pH in wastewater treatment processes for regulatory compliance. Chris is a licensed professional engineer (in Washington and Oregon), a project management professional and an Envision-certified sustainability professional.

Registrations or Washington State Professional Engineer, Oregon State Professional Engineer **Certifications**



Date	June 8, 2022	Track	1C - [Ductile Iron Pipe	
Start Time	12:45 PM	Drinkin	g Wate	er and/or Wastewater	Water, Wastewater
End Time	1:15 PM	Lengt Sess	h of sion	Half Hour (about 25 m for questions and discu	inutes with 5 minutes ussion)

Presentation Title: How to Differentiate Between Cast Iron and Ductile Iron Pipe

Abstract When ductile iron pipe was introduced into the marketplace in the late 1950s it was destined to supplant cast iron pipe as the pipe of preference for many utilities. However, there was a time when both pipes were available, which has resulted in some difficulty in identifying which pipe was which, today. While cast iron and ductile iron pipe are similar there are significant differences in physical properties and failure modes that differentiate the two. For proper asset management, it is important that the iron pipe in a system be correctly identified. If performance data are incorrectly attributed to the wrong pipe material, it will result in inaccurate analyses leading to potentially flawed planning decisions. This presentation provides information that will be useful in the effort to correctly identify cast and ductile iron pipes in service.

Speaker	Josh Blount	E-mail	jblount@dipra.org
Speaker's Job Title	Senior Regional Engineer	Phone	12055324267
Organization	Ductile Iron Pipe Research Association	n	
Primary Job Duties	I cover the Western US for DIPRA and my responsibilities include working with consulting engineers and utility owners in my area providing technical expertise regarding all aspects of ductile iron pipe. DIPRA is a trade association providing technical information and resources to the water and wastewater industry regarding iron pipe on behalf of the domestic ductile manufacturers. I routinely conduct technical trainings and presentations for engineers and O&M staff regarding ductile iron pipe as well as speak at local and national water and wastewater conferences.		
Registrations or	Licensed Professional Engineer in Nor	th Caroli	na

Certifications



Date	June 7, 2022	Track	2B - F	Planning & Construction	
Start Time	8:35 AM	Drinkin	g Wate	er and/or Wastewater	Water, Wastewater
End Time	9:35 AM	Lengt Sess	h of ion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: If it Won't Start, It Won't Work - Expanded Startup Planning

Abstract Operations personnel do an outstanding job treating water as it flows through their plants but when new equipment and processes are introduced to them, a steep learning curve may be required to meet water quality requirements. The last thing an operator wants to deal with is new equipment that does not work as required or trying to learn how the equipment functions on the fly. This presentation will demonstrate how operations personnel can limit risk as they accept new equipment and processes during upgrade projects

Speaker	Ed Griffenberg	E-mail	egriffen@hdrinc.com
Speaker's Job Title	Operations Specialist	Phone	14255918436
Organization	HDR		
Primary Job Duties	O&M consulting		
Registrations or Certifications	Washington State Wastewater Opera	tor	



Date	June 8, 2022	Track	1B - V	Vastewater Treatment	(Hybrid)
Start Time	2:50 PM	Drinkin	g Wate	er and/or Wastewater	Wastewater
End Time	3:50 PM	Lengt Sess	th of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Industrial Wastewater Nutrient Removal

Abstract	Cover th an indus	e startup and operation of new nitrogen removal and phosphorus removal processes at trial wastewater treatment plant that treats waste from a beef processing facility.					
S	peaker	Ben W McConkey	E-mail	ben.mcconkey@hdrinc.com			
Speaker's Jo	ob Title	Operations and Maintenance Specialist	Phone	13603393259			
Organ	ization	HDR Engineering Inc					
Primary Job	Duties	Startup and Operations of new waster development, training	water pr	ocesses and plants, O&M manual			
Registra Certi	ations or fications	Washington State Wastewater Opera	tor				



Date	June 7, 2022	Track	1C - (Controls	
Start Time	12:15 PM	Drinkin	g Wat	er and/or Wastewater	Water, Wastewater
End Time	1:15 PM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Introduction to Control Systems

Abstract This presentation will cover the basics of instrumentation, controls, communication, and networking. Content will focus on typical concerns and impacts on operation staff, specifically various design decisions and system considerations that may impact plant performance, operations, and maintenance. This presentation is intended to be part of a multi-part session and will cover three main topic areas discussed briefly below. For each topic, special considerations, lessons learned, and examples from past water and wastewater projects will be included.Contract and O&M Documentation: This will introduce presentation attendees to P&IDs, Elementary Control Diagrams, and Loop Drawings. The discussion will primarily focus on the various functions of each of these I&C documents and how to interpret / read some of the more basic elements and examples. Network diagrams will be briefly mentioned but are intended to be covered in the later sub-topic. Sensor types: The primary physical process sensors (flow, pressure, level, and temperature) will be introduced. Some basic examples in different types of sensors for each parameter will be discussed as well as common requirements and limitations to be considered such as accuracy, repeatability, noise, dead band, and measurement lag. Analyzers will be briefly introduced but will be discussed in more detail within Part 2 of this series. Controlled Elements: The various controlled elements will be covered such as VFDs and other adjustable speed or flow devices, actuators for valves, inlet/discharge vanes, and gates, the difference between modulation, positioning, and open/closed control operation, and various other pieces of process equipment such as blowers, pumps, and heat exchangers.

Speaker	Jennifer E Murphy	E-mail	JMURPHY@PARAMETRIX.COM
Speaker's Job Title	NW Water Markets Lead; Smart and Connected Communities, Water and Facilities Lead	Phone	4435069963
Organization	Parametrix		
Primary Job Duties	Jen Murphy is a Sr Consultant, NW Water Markets Lead, and Smart and Connected Communities, Water & Facilities Lead at Parametrix. She has over 15 years of experience in the construction and design industries, with the last 11 years focused providing clients with engineering to support large drinking water, waste water, and storm water pumping and treatment projects. Jen has played a significant role on design and construction projects at over 35 pumping stations and at over a dozen treatment facilities with capacities from 50,000 GPD to 800 MGD.		kets Lead, and Smart and Connected netrix. She has over 15 years of ustries, with the last 11 years focused on large drinking water, waste water, and . Jen has played a significant role on umping stations and at over a dozen 00 GPD to 800 MGD.



Date	June 7, 2022	Track	1A - W	ater Treatment (Virtua	al)
Start Time	2:25 PM	Drinking	g Wateı	r and/or Wastewater	Water
End Time	2:55 PM	Lengtl Sessi	h of H ion f	Half Hour (about 25 mi for questions and discu	nutes with 5 minutes Ission)

Presentation Title: Issaquah PFAS Treatment System Virtual Tour

Abstract This virtual tour will provide a tour of the City's granular activated carbon treatment (GAC) system for PFAS removal. The tour will include a discussion on how the utility operates their GAC system, the issues that can be encountered with GAC systems, maintenance activities along with the disposal of spent media.

Speaker	Beth Mende	E-mail	Elizabeth.mende@hdrinc.com
Speaker's Job Title	Water/Wastewater Engineer	Phone	9095281002
Organization	HDR		
Primary Job Duties	Beth Mende is a civil engineer with experience in surface water and groundwater treatment plant process design and operations, running bench scale and pilot plant operations, technical studies, water quality evaluations, as well as plant operation optimizations.		
Registrations or Certifications	Washington State Professional Engine	er	



Date	June 8, 2022	Track	1B - V	Vastewater Treatment	(Hybrid)
Start Time	10:15 AM	Drinkin	g Wate	er and/or Wastewater	Wastewater
End Time	11:15 AM	Lengt Sess	h of ion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Key points of the BOD analysis

Abstract We will	We will discuss elements of the BOD analysis and how to troubleshoot the analytical process.						
Speaker	Erika Schwender	E-mail	professionaltrainingassoc@gmail.com				
Speaker's Job Title	Executive Director	Phone					
Organization	Professional Training Association						
Primary Job Duties	Executive Director						
Registrations or Certifications	Washington State Wastewater Opera	ator, NM	WTPO III				



Date	June 8, 2022	Track 1	B - Wastewater Treatment (Hybrid)
Start Time	8:35 AM	Drinking \	Nater and/or Wastewater Wastewater
End Time	9:35 AM	Length Sessio	of Full Hour (about 50 minutes with 10n minutes for questions and discussion)

Presentation Title: Lab data & Process Control

Abstract	The insti this data	uctor will present on which laboratory test can be helpful to wastewater operations and can be utilized to make treatment optimization decisions.					
S	peaker	James Lee	E-mail	professionaltrainingassoc@gmail.com			
Speaker's Jo	b Title	Executive Director	Phone				
Organ	ization	Professional Training Association					
Primary Job	Duties	Retired operator, current instructor for	or PTA				
Registra Certif	itions or fications	Washington State Wastewater Opera	tor				



Date	June 7, 2022	Track 1B	- Wastewater Regulation	s (Virtual)
Start Time	10:15 AM	Drinking Wa	ater and/or Wastewater	Water, Wastewater
End Time	11:15 AM	Length of Session	Full Hour (about 50 mi minutes for questions	inutes with 10 and discussion)

Presentation Title: Laboratory Accreditation-General Topics

Abstract Part 1: Laboratory Accreditation General Overview- how to apply for or renew accreditation, reading and interpreting your accreditation documents.Part 2: Preparing for an audit-explains why we audit, how to set up for a virtual audit versus an onsite audit. Part 3: Responding to audit findings. Reading the audit report. What to do next. How to get the most out of this process to your advantage.

Speaker	Rebecca Wood	E-mail	rewo461@ecy.wa.gov	
Speaker's Job Title	Laboratory Accreditation Unit Supervisor	Phone		
Organization	WA Department of Ecology			
Primary Job Duties	Supervise the Laboratory Accreditation Unit and perform technical audits of laboratories			
Registrations or Certifications	N/A			



Date	June 8, 2022	Track 1C - T	reatment	
Start Time	8:35 AM	Drinking Wate	er and/or Wastewater Water, Wastewater	
End Time	9:35 AM	Length of Session	Full Hour (about 50 minutes with 10 minutes for questions and discussion)	
Presentation Title:	Laboratory Documentation			
Abstract We will explain what laboratory documentation is necessary for water quality monitoring.				
Speaker	Erika Schwender	E-ma	il professionaltrainingassoc@gmail.com	
Speaker's Job Title	Executive Director	Phon	e	
Organization	Professional Training Associa	tion		
Primary Job Duties	Executive Director			

Registrations or Washington State Wastewater Operator, NM WTPO III **Certifications**



Date	June 7, 2022	Track	1B - Wastewater Regulations (Hybrid)
Start Time	1:20 PM	Drinkin	g Water and/or Wastewater Wastewater
End Time	2:20 PM	Lengt Sess	h of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: Lessons Learned: Watershed-based water quality management system - Part 1

Abstract Watershed-based permitting, water quality exchange, and water quality trading is forging its way into the minds of many regulators and permittees in the Pacific Northwest. Washington State is working its way toward a General Permit for nutrient management for wastewater treatment plants that discharge to Puget Sound. This session looks at lessons learned from an established watershed-based water quality management system in the Pacific Northwest and Nationally. It explores nutrient credit exchanges, point and non-point issues, bubble allocation, legislation, incentives and national strategies that will have a direct impact on the future of this region. Speakers from Washington and Nationally will share their perspectives, thoughts, successes, and challenges on this complex and fascinating topic.

Speaker	John Phillips	E-mail	Jmphillips@parametrix.com	
Speaker's Job Title	Director of Integrated Watershed Management	Phone	2063943638	
Organization	Parametrix			
Primary Job Duties	John is the Director of Integrated Watershed Management an approach to natural resources and infrastructure development in watershed planning, management, restoration, and climate change adaptation. Prior to Parametrix John worked for King County managing the Combined Sewer Overflow Control Program.			
Registrations or Certifications	ENV SP			



Date	June 7, 2022	Track	1B - Wastewater Regulations (Hybrid)
Start Time	2:25 PM	Drinkin	g Water and/or Wastewater Wastewater
End Time	3:25 PM	Lengt Sess	:h of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: Lessons Learned: Watershed-based water quality management system - Part 2

Abstract Watershed-based permitting, water quality exchange, and water quality trading is forging its way into the minds of many regulators and permittees in the Pacific Northwest. Washington State is working its way toward a General Permit for nutrient management for wastewater treatment plants that discharge to Puget Sound. This session looks at lessons learned from an established watershed-based water quality management system in the Pacific Northwest and Nationally. It explores nutrient credit exchanges, point and non-point issues, bubble allocation, legislation, incentives and national strategies that will have a direct impact on the future of this region. Speakers from Washington and Nationally will share their perspectives, thoughts, successes, and challenges on this complex and fascinating topic.

Speaker	John Phillips	E-mail	Jmphillips@parametrix.com	
Speaker's Job Title	Director of Integrated Watershed Management	Phone	2063943638	
Organization	Parametrix			
Primary Job Duties	John is the Director of Integrated Watershed Management an approach to natural resources and infrastructure development in watershed planning, management, restoration, and climate change adaptation. Prior to Parametrix John worked for King County managing the Combined Sewer Overflow Control Program.			
Registrations or Certifications	ENV SP			



Date	June 8, 2022	Track	1C - L	Jtility Management	
Start Time	2:50 PM	Drinkin	g Wate	er and/or Wastewater	Water, Wastewater
End Time	3:20 PM	Lengt Sess	h of sion	Half Hour (about 25 m for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Making Capital Investment Decisions Using Portfolio Management

Abstract Water and Wastewater utilities face increasingly competitive demands for limited capital and human resources. How do we make decisions to ensure that we are doing the right projects at the right time for the right reasons? Portfolio Management offers a disciplined approach to aligning investment decisions to the overall organizational strategy.

Speaker	Crystal Fleet	E-mail	crystal.fleet@kingcounty.gov	
Speaker's Job Title	Capital Portfolio Planning and Analysis Unit Manager	Phone		
Organization	King County Wastewater Treatment Division			
Primary Job Duties	Manage capital project prioritization and governance processes for the King County Wastewater Treatment Division.			
Registrations or Certifications	Project Management Professional			



Date	June 7, 2022	Track 2C - Utility Management			
Start Time	8:00 AM	Drinking Water and/or Wastewater Water, Wastewater			
End Time	8:30 AM	Length ofHalf Hour (about 25 minutes with 5 minutSessionfor questions and discussion)			
Presentation Title:	Manage your career				
Abstract Presenta	ation will cover steps and cons	siderations to r	nanage your career in water/wastewater.		
Speaker	James Heitzman	E-ma	il james.heitzman@lkssd.org		
Speaker's Job Title	WWTP Supervisor	Phor	e 13609135043		
Organization	Lake Stevens Sewer District				
Primary Job Duties	wastewater				

Registrations or Washington State Wastewater Operator **Certifications**



Date	June 7, 2022	Track 2	2C - Utility Management (Virtual)
Start Time	10:15 AM	Drinking	g Water and/or Wastewater Water, Wastewater
End Time	11:15 AM	Length Sessie	h of Full Hour (about 50 minutes with 10ion minutes for questions and discussion)

Presentation Title: Material Increases, Supply-Chain Issues and Covid-19

Abstract	This presentation will outline the current price increases in construction materials, supply-chain
	issues, and covid-19 impacts. This presentation aims to provide Owners, Municipalities, and
	Consultants with current data that may impact their current for future capital projects outlining
	current inflation impacts, material impacts, market volatility issues, and Covid-19 impacts as well
	as suggested actions and cost estimating best practices. Sources include Engineering News-
	Record, U.S Bureau of Labor Statistics, Associated General Contractors of America, and other
	industry resources.as well as data from recent bid tab history of current projects.

Speaker	Peter Bredehoeft	E-mail	Peter.Bredehoeft@hdrinc.com
Speaker's Job Title	Estimating Business Class Lead	Phone	4703637672
Organization	HDR		
Primary Job Duties	Construction Cost Estimtating		
Registrations or Certifications	AACE Technical Board		



Date	June 7, 2022	Track	1B - Wastewater Treatment (Hybrid)
Start Time	9:05 AM	Drinking	g Water and/or Wastewater Wastewater
End Time	9:35 AM	Lengt Sess	th of Half Hour (about 25 minutes with 5 minutes sion for questions and discussion)

Presentation Title: Messing with the Thermostat: Understanding Impacts on Wastewater Process Temperature

Abstract Temperature is one of the few primary treatment system variables that can have a large impact on biological wastewater system performance but is rarely actively controlled. Additionally, most biological models incorrectly assume that the process temperature of wastewater flow stays relatively constant throughout a wastewater treatment plant. In this presentation we will present: (1) an overview of the major process heating and cooling sources within a treatment plant, (2) how this varies throughout the process stream, (3) how these various sources can be quantified (and an associated example using an in-house Parametrix tool), and (4) low impact, low cost ways to increase or decrease the amount of heating or cooling.

Speaker	Jennifer E Murphy	E-mail	JMURPHY@PARAMETRIX.COM		
Speaker's Job Title	NW Water Markets Lead and Smart and Connected Communities, Water & Facilities Lead	Phone	4435069963		
Organization	Parametrix				
Primary Job Duties	Jen Murphy is a Sr Consultant, NW Wa Communities, Water & Facilities Lead experience in the construction and de providing clients with engineering to s storm water pumping and treatment design and construction projects at ov treatment facilities with capacities from	Water Markets Lead, and Smart and Connected ead at Parametrix. She has over 15 years of d design industries, with the last 11 years focused on to support large drinking water, waste water, and ent projects. Jen has played a significant role on t over 35 pumping stations and at over a dozen is from 50,000 GPD to 800 MGD.			
Registrations or	Washington State Professional Engine	er			

Certifications



Date	June 7, 2022	Track 1C -	Treatment
Start Time	10:15 AM	Drinking Wat	er and/or Wastewater Wastewater
End Time	10:45 AM	Length of Session	Half Hour (about 25 minutes with 5 minutes for questions and discussion)

Presentation Title: Nitrogen Removal Optimization at Post Point

Abstract The City of Bellingham (City) provides wastewater service for over 100,000 people at the Post Point facility. As part of the Resource Recovery project, the City plans to replace the existing aging incinerators with a new anaerobic digestion process. The Washington State Department of Ecology (Ecology) recently issued a General Permit that requires treatment facilities identify strategies to optimize their process to limit their total inorganic nitrogen (TIN) discharge. Since the recycle stream from the new digestion process will effectively introduce a nitrogen load to the plant, the Resource Recovery project will include a side stream treatment process. However, this process is expected to reliably remove only 80 percent of the additional nitrogen in the digestion recycle. Therefore, additional optimization measures will need to be reviewed to comply with the General Permit. Several optimization strategies were evaluated to help the City limit their annual effluent nitrogen load. These strategies focus on dentification during the summer months when flows are lower and wastewater temperatures are warm. The strategies evaluated include modulating the operation of pump stations within the collection system to limit peak flows at the plant and to maximize nitrogen return to the secondary process by increasing the existing RAS pumping. The viability of these alternatives was evaluated using the existing collection system model and the calibrated whole plant BioWin model. Preliminary results of these modeling efforts indicate that the City's range of nitrogen reduction strategies is anticipated to achieve compliance with the annual TIN Action Level prescribed in the General Permit through the first permit cycle.

Speaker	Anne Conklin	E-mail	aconklin@carollo.com	
Speaker's Job Title	Principal Technologist	Phone	2063714950	
Organization	Carollo Engineers			
Primary Job Duties	Wastewater Process Engineer			
Registrations or Certifications	Washington State Professional Engineer			



Date	June 8, 2022	Track 1/	A - Water Treatment (Virtual)
Start Time	8:35 AM	Drinking V	Vater and/or Wastewater Water
End Time	9:35 AM	Length o Sessio	of Full Hour (about 50 minutes with 10n minutes for questions and discussion)

Presentation Title: On-site sodium hypochlorite generation

Abstract This 60-minute seminar will provide water system managers, operators and engineers a practical understanding of the science and implementation behind on-site sodium hypochlorite generation (OSHG) as a source of chlorine disinfection capacity for water and wastewater plants as well as distributed well systems.

Speaker	Ethan Brooke	E-mail	grock@ugsicorp.com	
Speaker's Job Title	Regional Manager	Phone	17248143756	
Organization	UGSI Solutions			
Primary Job Duties	An expert on aeration technologies for trihalomethane (THM) removal.			
Registrations or Certifications	Washington Approved Training Course Sponsor			



Date	June 7, 2022	Track	2B - F	Planning & Construction	
Start Time	7:30 AM	Drinkin	g Wat	er and/or Wastewater	Water, Wastewater
End Time	8:30 AM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Operator Involvement in Capital Facility Planning and Design

Abstract Providing operator input during the design process is critical to the success of the project. This class will discuss what O&M personnel must do to ensure the information brought to the design workshops is incorporated into the design. The presentation will also discuss some of the areas O&M staff should focus on during the design process.

Speaker	Ed Griffenberg	E-mail	egriffen@hdrinc.com
Speaker's Job Title	Operations Specialist	Phone	14255918436
Organization	HDR		
Primary Job Duties	O&M Consulting		
Registrations or Certifications	Washington State Wastewater Operator		



Date	June 7, 2022	Track 1C - 1	Freatment
Start Time	9:05 AM	Drinking Wat	er and/or Wastewater Water
End Time	9:35 AM	Length of Session	Half Hour (about 25 minutes with 5 minutes for questions and discussion)

Presentation Title: Optimizing Ammonia and Manganese Removal from Groundwater: A Case Study

Abstract After working with the community to acquire and make needed improvements to the Warm Beach drinking water system, Snohomish PUD engaged Confluence to optimize treatment. The facility consists of catalytic-oxidation filtration for manganese (Mn) removal and treats water with 2 mg/L total ammonia and 0.6 mg/L total Mn. The facility has historically been operating without achieving oxidation of ammonia, filters were not performing well in removal of Mn (filter effluent Mn was exceeding the secondary MCL), and other issues such as filter backwash and run times were sub-optimal. The presentation will discuss how engineers and operators diagnosed treatment faults with bench and pilot testing, recommended adjustments to treatment which included further bench/pilot testing and improvements to on-line monitoring and SCADA process control, and monitored implementation of treatment improvements to reduce Mn and reliably achieve free chlorine in treated water.

Speaker	Alex Mofidi	E-mail	alex@confluence-engineering.com		
Speaker's Job Title	Senior Project Manager	Phone	2068664562		
Organization	Confluence Engineering Group LLC				
Primary Job Duties	Alex is an engineering consultant completing various water treatment, distribution system, and premise plumbing optimization projects.				
Registrations or Certifications	Washington State Professional Engineer				



Date	June 7, 2022	Track	1B - Wastewater Treatment (Virtual)
Start Time	7:30 AM	Drinking	g Water and/or Wastewater Wastewater
End Time	8:00 AM	Lengt Sess	th of Half Hour (about 25 minutes with 5 minutes for questions and discussion)

Presentation Title: PFAS-free biochar from Biosolids

Abstract Landfilling biosolids is one of the common disposal practices of wastewater treatment plants in the United States. While there is not a comprehensive monitoring of all biosolids production and disposal practices, the data collected by the EPA in 2019 from around 2,200 of the country's largest wastewater treatment facilities shows that at least 1 million dry metric tons of biosolids were sent to landfill that year. While some progress has been made to cap and utilize the methane produced by some of the landfills in the United States, there is still a large quantity of methane being released by landfills receiving this organic waste. This presentation investigates one opportunity to reduce the environmental impact of biosolids by diverting it from landfill and creating a PFAS-free biochar product from it. The technology that will be used to illustrate the potential of this biosolids management option is, at the time of writing, the only full scale biosolids pyrolysis installation in the United States and is designed and distributed by Bioforcetech Corporation. Bioforcetech (BFT) has developed an innovative thermal processing system, consisting of a drying and pyrolysis technology, for managing biosolids from Water Resource Recovery Facilities (WRRFs). BFT's biodrying process harvests energy from a combination of natural microbial oxidation of the biosolids and heat recovered from the pyrolysis operation. The combination of BFT's biodrying and pyrolysis operations provide for a biosolids management option with a low carbon footprint relative to existing options. The process is energy neutral, reduces the mass of the biosolids and generates biochar that both sequesters carbon and improves soil health when used as a soil amendment.

Speaker	Valentino Villa	E-mail	v.villa@bioforcetech.com
Speaker's Job Title	C00	Phone	
Organization	Bioforcetech Corporation		
Primary Job Duties	CO0		
Registrations or Certifications	N/A		



Date	June 8, 2022	Track	2B - F	Pump Stations	
Start Time	12:15 PM	Drinkin	g Wat	er and/or Wastewater	Water, Wastewater
End Time	1:15 PM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Predicting Bearing Failures in Pumps using Vibration Analysis

Abstract	Vibration analysis is the best way to predict bearing failure in motors and pumps. Understanding
	the stages of hearing failure and how they are detected can assist owners in determining the best
	the stages of bearing failure and now they are detected can assist owners in determining the best
	methods for vibration monitoring and planning for repairs. There are several varieties of
	vibration analysis systems on the market. With proper training and understanding, any vibration
	analysis system can produce positive results. However, all of these systems have their
	shortcomings and require knowledgeable personnel interactions. This one hour course will
	provide examples of motor and pump bearing failures showing the stages of bearing failure, a
	variety of vibration analysis systems where failures were predicted and not predicted and how an
	understanding of vibration analysis can avoid common pitfalls.

Speaker	Patrick Patterson	E-mail	patrick@idealvibration.com	
Speaker's Job Title	Owner	Phone	2067957158	
Organization	Ideal Vibration			
Primary Job Duties	Principal Consultant, Owner			
Registrations or Certifications	Vibration Analyst ISO Certified Category III			



Date	June 8, 2022	Track	2B - F	Pump Stations	
Start Time	8:35 AM	Drinkin	g Wate	er and/or Wastewater	Water, Wastewater
End Time	9:35 AM	Lengt Sess	h of ion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Protecting Your Motors on VFD Applications

Abstract	t Will review the various uses of VFDs and steps utilities can take to protect motors operating VFDs.						
S	peaker	Robert Hansen	E-mail	rhansen@carmodycompany.com			
Speaker's Jo	ob Title	Applications Engineer, GM	Phone				
Organ	ization	Carmody Company					
Primary Job	Duties	Applications Engineer for VFD Applica	tions				
Registra Certi	ations or fications	None					



Date	June 8, 2022	Track	2B - F	Pump Stations	
Start Time	10:15 AM	Drinkin	g Wat	er and/or Wastewater	Water, Wastewater
End Time	11:15 AM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Pump Control Valves

Abstract	Valves u pump co	s used in conjunction with pumps for water and wastewater systems including booster control valves, deep well pump control valves, check valves, and ball valves.						
S	peaker	Robert Velasquez	E-mail	Robert@cimco-gcsystems.com				
Speaker's Jo	ob Title	Water Management Consultant	Phone					
Organ	ization	Cimco-GC Systems						
Primary Job	Duties	Consulting with Engineers and Water Val and Val-Matic	District e	employees on product selection from Cla-				
Registra Certi	ations or fications	Cla-Val Factory Trained						



Date	June 8, 2022	Track	2B - P	ump Stations	
Start Time	1:45 PM	Drinkin	g Wate	r and/or Wastewater	Wastewater
End Time	2:45 PM	Lengt Sess	h of sion	Full Hour (about 50 min minutes for questions	nutes with 10 and discussion)

Presentation Title: Pump Performance Assessment and Predictive Maintenance

Abstract Assessing the condition of pumps can be a significant undertaking for many utilities, and the specific approaches and techniques of assessment can vary widely. Reduced capacity or excessive vibration are easily identifiable signs of a failed pump; however, quantifying the specific degradation of an individual pump can be difficult. Methodology for field testing pumps and the differing approaches in testing both flood control and wastewater pumps will be presented. The technical requirements and constraints of instruments and data logging equipment will be reviewed. Some of the common and uncommon insights into centrifugal pump performance and specific indicators of wear on various components will be discussed. Case studies will be presented detailing how results from pump testing can be applied to assess equipment condition as well as make predictive maintenance and capital improvement decisions.

Speaker	Brandon Moss	E-mail	bmoss@parametrix.com
Speaker's Job Title	Project Engineer	Phone	
Organization	Parametrix		
Primary Job Duties	Hydraulic modeling, design, simulation, and field testing		
Registrations or Certifications	Washington State Professional Engine	er	



Date	June 7, 2022	Track 2	- Controls	
Start Time	1:20 PM	Drinking	ater and/or Wastew	v ater Water, Wastewater
End Time	2:20 PM	Length Sessio	Full Hour (about minutes for ques	50 minutes with 10 tions and discussion)

Presentation Title: Real Time Process Controls

Abstract This abstract will build on the earlier presentation "Introduction to Control Systems" which will provide an overview of common control system documentation, instruments and controlled elements, and general controlling systems. This presentation will delve into more specifics with an overview of the commonly controlled processes within a wastewater treatment plants ; basic control strategies and theory, and advanced control types that can be used to control the common processes in wastewater treatment plants. Some additional information on each area is included below: Overview of Commonly Controlled WW Treatment Processes: This will cover headworks, sedimentation, filtration, biological, chemical dosing, flow splitting, and disinfection and some common parameters that are used to control simple system operation. Control Strategies: This will cover the basics of control logic, specifically from a process control standpoint and with clear descriptions and examples of associated documentation. This will include the basics of simple on/off control schemes, interlocks, permissive, seal in circuits, and basic PID loop control and loop tuning.Advance Process Control Strategies: This section will primarily focus on flow and aeration control, biological nutrient removal, and UV systems control. It will start with an introduction to cascading loop control. Dissolved Oxygen, Ammonium cts. n

Feedb biolog Sever turbio	back, Ammonium Feedforward, and Am gical nutrient removal control using case al most open valve control strategies w lity and UV intensity sensors.	monium a cading loo ill be expl	and Nitrate Ratio control strategies for ps will be discussed with example project ored as will efficient UV control based on
Speake	er Jennifer E Murphy	E-mail	JMURPHY@PARAMETRIX.COM
Speaker's Job Titl	 NW Water Markets Lead and Smart and Connected Communities, Water & Facilities Lead 	Phone	4435069963
Organizatio	n Parametrix		
Primary Job Dutie	Is Jen Murphy is a Sr Consultant, NW V Communities, Water & Facilities Lea experience in the construction and o providing clients with engineering to storm water pumping and treatmen design and construction projects at treatment facilities with capacities f	Vater Ma Id at Para design ind o support t projects over 35 p rom 50,00	rkets Lead, and Smart and Connected metrix. She has over 15 years of ustries, with the last 11 years focused on large drinking water, waste water, and . Jen has played a significant role on umping stations and at over a dozen 00 GPD to 800 MGD.



Date	June 8, 2022	Track	2B - F	Pump Stations	
Start Time	7:30 AM	Drinkin	g Wate	er and/or Wastewater	Water, Wastewater
End Time	8:30 AM	Lengt Sess	h of ion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Real World Considerations for Pump Design, Operation and Troubleshooting

Abstract Agenda/Abstract: Real World Considerations for Pump Design, Operation and TroubleshootingWe will discuss various aspects of pump design which can be used by consulting engineers as well as plant staff. Topics include piping and supports, gauges, switches, suction lift, TDH, NPSH, cavitation and when to use centrifugal versus positive displacement pumps. We will also discuss pump operation and maintenance. Pump troubleshooting will also be covered including tools the plant should have as well as common causes and remedies of pump issues. This information comes from lessons learned during 32 years of work in the water and wastewater industry.1 hour presentation. No breaks or lunch. Start and end time varies for each meeting. Design (30 minutes): • Piping and supports•Gauges•Switches•Suction lift•TDH – total dynamic head•NPSH – net positive suction head. Centrifugal versus positive displacement (PD) pumpsOperation (10 minutes): •Listen•Touch•TeachTroubleshooting (20 minutes): •Important troubleshooting toolsoTachometeroPressure and vacuum gaugesoFlow metersoAmp meteroVoltage meteroInfrared thermometeroEyesoEars•Causes of issues: oThe pumpoHydraulicsoControls

Speaker	Steve Truitt, PE	E-mail	struitt@pennvalleypump.com			
Speaker's Job Title	Regional Manager	Phone	8473408917			
Organization	Penn Valley Pump Company					
Primary Job Duties	Education on equipment selection, application engineering					
Registrations or Certifications	Washington State Professional Engineer					



Date	June 7, 2022	Track 1	A - Distribution Systems (Virtual)
Start Time	8:35 AM	Drinking V	Vater and/or Wastewater Water
End Time	9:35 AM	Length o Sessio	of Full Hour (about 50 minutes with 10n minutes for questions and discussion)

Presentation Title: Reservoir Mixing to Improve Water Quality

Abstract This 60-minute seminar will provide water system managers, operators and engineers a practical understanding of the science behind applying mixing energy to water in reservoirs or tanks as a means to improve water quality in distribution networks.

Speaker	Ethan Brooke	E-mail	grock@ugsicorp.com
Speaker's Job Title	Regional Manager	Phone	17248143756
Organization	UGSI Solutions		
Primary Job Duties	Ethan Brooke is an internationally rec trihalomethane (THM) removal. His n the Journal American Water Works A held by the University of New Hamps and product management and has we distribution system infrastructure imp	ognized haster's t ssociatio hire. Eth prked on proveme	expert on aeration technologies for chesis on THM aeration was published in n and resulted in three patents which are an has a background in civil engineering a variety of water, wastewater and nt projects.

Registrations or Washington Approved Training Course Sponsor Certifications



Date	June 8, 2022	Track	2B - F	Pump Stations	
Start Time	2:50 PM	Drinking	g Wate	er and/or Wastewater	Water, Wastewater
End Time	3:50 PM	Lengt Sess	h of ion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Riding the Wave: Introduction to Hydraulic Transient Analysis

Abstract A large proportion of wastewater pump station forcemains have traditionally been designed without the consideration of the risk and potential consequence of hydraulic transients (water hammer). Long term operation of forcemains without mitigation of vacuum pressure created by pump on/off cycles can lead to frequent vapor cavity formation and collapse. This fatigues pipes over time, reducing their expected service life or in extreme cases can result in pipe break. This presentation will provide an overview of hydraulic transient theory, review how hydraulic transients are modeled with a software demonstration, and provide methods for how transients can be mitigated.

Speaker	Brandon Moss	E-mail	bmoss@parametrix.com
Speaker's Job Title	Project Engineer	Phone	
Organization	Parametrix		
Primary Job Duties	Hydraulic modeling, design, simulation, and field testing		
Registrations or Certifications	Washington State Professional Engineer		



Date	June 7, 2022	Track	2B - P	lanning & Construction	
Start Time	1:20 PM	Drinkin	g Wate	r and/or Wastewater	Wastewater
End Time	2:20 PM	Lengt Sess	h of sion	Full Hour (about 50 minimized for questions and the second	nutes with 10 and discussion)

Presentation Title: SCWQP Commissioning One Through Six

Abstract Title: SCWQP Commissioning One Through Six – How to commission one facility constructed in three separate construction projects, designed by four design teams, over the span of six years.Abstract: The Ship Canal Water Quality Project (SCWQP) is a joint project between Seattle Public Utilities and King County that will improve water quality regionally by keeping an average of more than 75 million gallons of stormwater runoff and sewage (combined sewage) from flowing into the Lake Washington Ship Canal, Salmon Bay, and Lake Union each year. The SCWQP will divert combined sewage to a new tunnel that will store combined sewage until capacity is available at the West Point Treatment Plant. The SCWQP will construct a 29 million gallon capacity combined sewage storage tunnel, two microtunnels, conveyance structures, drop shafts, and a pump station with 12 million gallon per day pumping capacity. Design for this project began in 2015 and construction will be completed by December 2025. The SCWQP will be constructed in three separate construction projects with the first construction project scheduled for completion in the summer of 2023 and the last project scheduled for substantial completion in 2025. SCWQP commissioning is an activity that will require significant coordination between agencies as well as within each agency to ensure that the facility meets its operational requirements and performance criteria.

Speaker	Joelle Torre	E-mail	joelle.torre@seattle.gov
Speaker's Job Title	Senior Civil Engineer	Phone	
Organization	Seattle Public Utilities		
Primary Job Duties	Wastewater Design Engineer		
Registrations or Certifications	Washington State Professional Engine	eer	



Date	June 8, 2022	Track	1A - Asset Management (Hybrid)
Start Time	12:15 PM	Drinkin	ng Water and/or Wastewater Water
End Time	1:15 PM	Lengt Sess	th of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: Sharpening Asset Management Strategies for Water Utilities

Abstract This presentation will cover how Covington Water District is implementing management strategies into their asset management program to drive future planning and long term funding needs. The journey from program development to honing of strategies will be discussed to provide takeaways that water utilities can utilize within their organizations. Key concepts will be how Covington Water District sharpened their management strategies to determine their future funding needs for the next 100 years. Anyone who wants to steer an organization safely and successfully into the future needs a "north star" or a strategy. A clear strategy increases the likelihood of achieving success. Management strategies exist because, in the long-run, organizations can only achieve top performance if they have a clear strategy in place and the strategy is anchored throughout the organization. Otherwise, the ship would be driving forward with no clear direction, potentially toward the iceberg. This is especially true when looking toward future funding needs. A clear map is crucial to meeting the future funding needs of a utility. Asset management programs deliver large amounts of data that can be leveraged to determine future funding needs but this can only be done with effective management strategies. Covington Water District, like many utilities, is implementing management strategies into their asset management program to give clear direction to future funding needs. However, developing these management strategies is often laden with challenges that makes long-term planning a monumental task. How does an organization go from development of an asset management program to producing 100 year funding forecasts? Covington Water District has implemented management strategies that are providing clear direction to our future funding needs. This presentation seeks to provide direction to those organizations looking to leverage asset management data and turn that into long-term funding requirement forecasts. Key concepts will be how to sharpen management strategies to develop long-term funding forecasts that serve as the organizations "north star" well into the future.

E-mail chris.guest@covingtonwater.com

Speaker's Job Title Customer Service Supervisor

Phone 12532619988

Organization Covington Water District

Primary Job Duties Responsible for oversight of the day-to-day activities related to customer service, utility billing, collections, meter reading installation and repair.

Registrations or Washington State Water Operator Certifications



Date	June 8, 2022	Track	1B - Wastewater Treatment (Hybrid)
Start Time	1:45 PM	Drinkin	g Water and/or Wastewater Wastewater
End Time	2:45 PM	Lengt Sess	h of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: Sludge Minimization Technologies

Abstract Reduction of sludge volume can be achieved by enhanced solids stabilization, mechanical thickening and dewatering, and thermal processing to evaporate water. In this presentation, a case study of a typical wastewater treatment plant serving 100,000 people was used to illustrate how these sludge minimization technologies change the mass and energy balance of the wastewater treatment plant. Where the right combinations of equipment are chosen, substantial sludge volume reduction can be realized without significantly increasing the required manpower or energy demand.

Speaker	Jerod Swanson	E-mail	Jerod.swanson@centrisys.us
Speaker's Job Title	Western Regional Sales Manager	Phone	6124012006
Organization	Centrisys-CNP		
Primary Job Duties	Sales		
Registrations or Certifications	none of the above		



Date	June 8, 2022	Track	2C - C	Collection & Distribution	n Systems
Start Time	10:15 AM	Drinkin	g Wate	er and/or Wastewater	Wastewater
End Time	11:15 AM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Smart Level Monitoring

Abstract This presentation reviews how customers can adopt unique and patented monitoring technology, which gives them data in the field that they did not have before. The level monitors mount directly on the manhole covers – thereby eliminating the need for a confined space entry - and use ultrasonic sensors to monitor water levels. Real-time remote water level monitoring can identify locations where a possible sewer system overflow (SSO) is developing and alarm these conditions before the overflow, allowing field staff to visit the site and perform corrective actions. Locating these problems prior to an SSO actually occurring has enabled users of this unique monitoring tool to pinpoint the causes of these blockages.By placing the remote monitors at sites which are cleaned multiple times a year (due to FOG, roots, etc), water levels are wirelessly transmitted in real-time to the collection system operator, and the knowledge of these water levels and the lack of problems at these sites has enabled re-deployment of staff to other problem areas. This yields both ROI in time and money within one year of utilizing the system.Remote real-time level monitors also provide a means to detect and correlate rain events with I&I. The ability to identify, quantify and track down sources of I&I is critical to minimizing problems with overflows during significant precipitation events. This system now uses automatic tools to track WHICH locations are experiencing higher levels, based on the rain event. The system can also monitor the TOTAL dynamic range between the bottom of the pipe to the very top of the manhole. Utilities can also utilize these monitors to provide additional information before, during, or after large Capital Improvement Projects. This application can also yield high levels of ROI, or the chance to delay, defer, or eliminate costly CIP projects.Some newer applications include customers utilizing these sensors to monitor stormwater areas and Combined Sewer Outfalls/OverflowsFinally, by utilizing this same set up, agencies can now monitor H2S levels in their sewer systems as well. This new feature can assist in odor studies, dosing, and overall health of the pipe/manhole.

Speaker	Brogan Quist	E-mail	bquist@smartcoversystems.com		
Speaker's Job Title	West Regional Manager	Phone			
Organization	SmartCover				
Primary Job Duties	Work with customers in the Western region of the United States and Canada to help solve their challenges by providing remote monitoring systems.				
Registrations or Certifications	CWEA, WEF				



Date	June 7, 2022	Track	2C - U1	tility Management (Vir	tual)
Start Time	7:30 AM	Drinking	g Wate	r and/or Wastewater	Water, Wastewater
End Time	8:00 AM	Lengtł Sessi	h of ion	Half Hour (about 25 mi for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Strategies to Diversify Our Present and Future Workforce

Abstract Strategies to Diversify Our Present and Future WorkforceOur communities are becoming more diverse and the King County Wastewater Treatment Division (WTD) recognizes the benefits of and the need to diversify its workforce to keep pace with that change. WTD has undertaken several internal and external recruitment and employee development strategies to create and maintain a highly skilled and efficient workforce. These strategies are broad in scope, including a focus on gender, underrepresented racial groups, and other historically marginalized groups.

Speaker	Robert Tovar	E-mail	robert.tovar@kingcounty.gov
Speaker's Job Title	Equity, Inclusion & Belonging Manager	Phone	
Organization	King County Wastewater Treatment D	ivision	
Primary Job Duties	Robert Tovar is the Equity, Inclusion & Wastewater Treatment Division (WTD held a variety of positions and has mo management, and organizational deve experience includes leadership develor social justice, operational management development. He is trained in a variet certified as an Interest Based Bargaini Development trainer and Interperson	Belong). As a 2 ore than elopment, opment, confli y of grou ng Facili al Comm	ing Manager for King County's O-year employee of WTD, Robert has 30 years of experience in leadership, it and consulting. Robert's professional training design and delivery, equity and fct resolution and organizational up facilitation and training methods and tator, Cultural & Interpersonal nunication Trainer.
Registrations or	Certified Facilitator and trainer		

is

Certifications



Date	June 8, 2022	Track	1C -	Biosolids	
Start Time	10:15 AM	Drinkin	g Wat	er and/or Wastewater	Wastewater
End Time	11:15 AM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: The Biodryer: A Solution to All Your Biosolids Handling Needs?

Abstract	Historically, there have been limited options for the treatment and disposal of wastewater
	biosolids, which typically required some combination of thickening, digestion, and dewatering
	prior to disposal in a sanitary landfill. However, emerging technologies are offering alternative
	methods to process biosolids that result in a reusable product. One of these emerging
	technologies is the Bioforcetech BioDryer, a process which rapidly converts wasted sludge into
	Class A biosolids. This presentation seeks to inform design and cost considerations of the
	BioDryer for municipalities considering the adoption of new biosolids handling technologies. Two
	projects currently in design in the Pacific Northwest using the BioDryer technology will be
	presented.

Speaker	Elizabeth Goltiao	E-mail	egoltiao@parametrix.com
Speaker's Job Title	Water Solutions Engineer	Phone	2533926558
Organization	Parametrix		
Primary Job Duties	Mechanical design lead		
Registrations or Certifications	WA Engineer-in-Training		



Date	June 8, 2022	Track	1C - 1	reatment	
Start Time	7:30 AM	Drinking	g Wat	er and/or Wastewater	Water, Wastewater
End Time	8:30 AM	Lengtl Sess	h of ion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: The Fundamentals of Electrochemistry

Abstract	What op We will a	perators need to know to perform their job properly and get accurate consistent results. also cover troubleshooting and equipment care and maintenance.						
9	Speaker	Mark McElroy	E-mail	mark.mcelroy@thermofisher.com				
Speaker's J	ob Title	Technical Sales Manager	Phone	4258940111				
Orgar	nization	Thermo Fisher Scientific						
Primary Job	rification equipment							
Registr Cert	ations or ifications	Industry professional for 14 years						



Date	June 7, 2022	Track	2C - Utility Management (Virtual)
Start Time	8:35 AM	Drinking	g Water and/or Wastewater Water, Wastewater
End Time	9:35 AM	Length Sessie	h of Full Hour (about 50 minutes with 10ion minutes for questions and discussion)

Presentation Title: The resilient utility- managing risk and preparing for the worst

Abstract "The resilient utility- managing risk and preparing for the worst" This presentation discusses topics related to resiliency and risk management. It includes examples and discussion of how to identify and quantify risk in a way that it can be used to appropriately assign resources to lower a utility's overall risk. By lowering overall risk, the utility becomes more resilient to events such as unplanned equipment failures, staffing shortages, weather events, etc.

Speaker	Gerald Fejarang	E-mail	geraldfejarang@kennedyjenks.com
Speaker's Job Title	Reliability Engineer and Project Manager	Phone	
Organization	Kennedy Jenks		
Primary Job Duties	Risk & Reliability and Asset Managem	ent Lead	
Registrations or Certifications	Professional Engineer (California)		



Date	June 8, 2022	Track 1A	- Water Treatment (Virtual)
Start Time	10:15 AM	Drinking W	/ater and/or Wastewater Wastewater
End Time	11:15 AM	Length o Session	 Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: The Science of Water and Wastewater Treatment Polymer Activation

Abstract This 60-minute seminar will provide water system managers, operators and engineers a practical understanding of the science behind polymer and polymer activation as well as the techniques used to optimize the use of polymer in plant settings.

Speaker	Jeff Rhodes	E-mail	jrhodes@ugsicorp.com		
Speaker's Job Title	Vice President of Commercial Development	Phone	19705562001		
Organization	UGSI Solutions				
Primary Job Duties	Jeff Rhodes serves as the Vice President of Commercial Development and as a technical specialist in chemical feed applications for the central United States.				
Registrations or Certifications	 Washington approved Training Course Sponsor 				



Date	June 7, 2022	Track	1A - Distribution Systems (Virtual)
Start Time	10:15 AM	Drinkin	g Water and/or Wastewater Water
End Time	11:15 AM	Lengt Sess	h of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: THM Reduction in Water Distribution Systems

Abstract This 60-minute seminar will provide water system managers, operators and engineers a practical understanding of the conditions, chemistry and science behind trihalomethane (THMs) generation in water distribution systems. Importantly, the second half of the seminar will present a suite of proven technologies that can be employed to reduce THM levels in real world water distribution systems.

Speaker	Ethan Brooke	E-mail	grock@ugsicorp.com		
Speaker's Job Title	Regional Manager	Phone	17248143756		
Organization	UGSI Solutions				
Primary Job Duties	Ethan Brooke is an internationally rec trihalomethane (THM) removal. His n the Journal American Water Works A held by the University of New Hamps and product management and has we distribution system infrastructure imp	ke is an internationally recognized expert on aeration technologies for nane (THM) removal. His master's thesis on THM aeration was published in American Water Works Association and resulted in three patents which are University of New Hampshire. Ethan has a background in civil engineering t management and has worked on a variety of water, wastewater and system infrastructure improvement projects.			
Registrations or	Washington Approved Training Cours	e Sponso	or		

Certifications



Date	June 8, 2022	Track	1C - [Ductile Iron Pipe	
Start Time	12:15 PM	Drinkin	g Wat	er and/or Wastewater	Water, Wastewater
End Time	12:45 PM	Lengt Sess	th of sion	Half Hour (about 25 m for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Thrust Restraint for Ductile Iron Pipe

Abstract Explains what causes thrust forces in a pressurized pipeline system and why they need to be counteracted. It then goes through in detail the different thrust restraint methods for ductile iron pipe including the design calculations for each.

Speaker	Josh Blount	E-mail	jblount@dipra.org
Speaker's Job Title	Senior Regional Engineer	Phone	12055324267
Organization	Ductile Iron Pipe Research Associaton		

Primary Job Duties I serve as a Regional Engineer for DIPRA covering the Western United States. My duties include providing technical advisory services to water and wastewater utility professionals, and consulting engineers regarding all aspects of iron pipe such as thickness design, installation, corrosion control, etc. I am also on several AWWA and ASCE committees and involved with DIPRA's ongoing research projects regarding ductile iron pipe.

Registrations or P.E. in North Carolina Certifications



Date	June 8, 2022	Track 1	A - Water Treatment & Distribution(Hybrid)
Start Time	7:30 AM	Drinking \	Nater and/or Wastewater Water, Wastewater
End Time	8:30 AM	Length Sessio	of Full Hour (about 50 minutes with 10n minutes for questions and discussion)

1

Presentation Title: Total & Fecal Coliform Testing

Abstract	We expl filtration	ain key steps involved in the Total & Fecal Coliform analysis using the membrane and QuantiTray methods.					
S	Speaker	Erika Schwender	E-mail	professionaltrainingassoc@gmail.com			
Speaker's J	ob Title	Executive Director	Phone				
Orgar	nization	Professional Training Association					
Primary Job	Duties	Executive Director					
Registr Certi	ations or ifications	Washington State Wastewater Opera	tor, NM	WTPO III			



Date	June 8, 2022	Track	C - Utility Management	
Start Time	1:45 PM	Drinking	Water and/or Wastewate	r Water
End Time	2:45 PM	Lengt Sess	of Full Hour (about 50 minutes for question	ninutes with 10 is and discussion)

Presentation Title: Using Data Analytics to Make Informed Water Infrastructure Maintenance Decisions

Abstract	This presentation will cover asset management, including using analytics to make maintenance
	decisions, developing an asset management system for a new water supply system; maintaining
	distribution system piping; and updating pressure zones. The data management topics include
	building a data strategy for a utility; preparing an organization to move to digital water;
	managing and optimizing data and machine learning to improve system operation; and planning
	for the future. Specific topics covered will be district metering areas, pressure zones, and pipe
	replacement programs.

Speaker	Mike Uthe	E-mail	muthe@muellerwp.com
Speaker's Job Title	Northwest Area Manager	Phone	
Organization	Mueller Water Products		
Primary Job Duties	Technical Sales		
Registrations or Certifications	Not licensed in state of WA.		



Date	June 8, 2022	Track	2C - Collection & Distribution Systems
Start Time	8:35 AM	Drinking	Water and/or Wastewater Wastewater
End Time	9:35 AM	Length Sessie	of Full Hour (about 50 minutes with 10 minutes for questions and discussion)

Presentation Title: Using GIS for Sewer Utilities

Abstract This presentation is to share various use of GIS technology in KC Wastewater Treatment Division. How data are created and developed and used in day-to-day work and to support various capital projects. Also will talk about how WTD GIS is integrated with the rest of the King County GIS system and what role it plays with the rest of the KC GIS. Lastly, the use of a drone to gather data and how it's being integrated with GIS to support WTD business.

Speaker	Peter Keum	E-mail	peter.keum@kingcounty.gov	
Speaker's Job Title	GIS Specialist - Senior	Phone		
Organization	King County Dept of Natural Resource	& Parks	s Wastewater Treatment Division	
Primary Job Duties	I'm as GIS Specialist supporting KC Wastewater Treatment Division. My main job is to maintain and develop sewer data and develop cartographic maps, web applications, and analysis to help support WTD business needs.			
Registrations or Certifications	GISP: Geographic Information System	Profess	ionals	



Date	June 7, 2022	Track	2C - L	Jtility Management	
Start Time	12:15 PM	Drinking	g Wate	er and/or Wastewater	Water, Wastewater
End Time	1:15 PM	Lengt Sess	h of ion	Half Hour (about 25 m for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Using Risk to Mitigate Risk: evaluation frameworks and renewal forecasting

Abstract	This presentation will touch on best practices for defining:-Likelihood of failure-Consequence
	of failure-Weighting and scoringIt will also discuss how to evaluate your data, and how to use
	risk rated assets to plan for O&M activities, capital projects, and long-range rate
	setting.Attendees will come away with knowledge on common risk factors, different types of
	failure to consider in their programs, and understanding of how using risk informs decision-
	making in the near- and long-terms. This information will be relevant to all utilities: water,
	wastewater, and stormwater, and apply to linear assets such as pipelines, as well as vertical
	infrastructure like pump stations and treatment plants.

Speaker	Elizabeth Lowell	E-mail	elizabeth.lowell@hdrinc.com	
Speaker's Job Title	Utility Management Services Lead	Phone	4253014655	
Organization	HDR			
Primary Job Duties	Utility Management Service lead and lead asset management consultant. I support water, wastewater, and stormwater agencies in asset management program evaluations, renewal forecasting, risk rating frameworks, and strategic planning.			
Registrations or Certifications	Institute for Asset Management certif Certification	ficate; A	WWA Utility Risk and Resilience	



Date	June 7, 2022	Track 2C -	Facility Tour
Start Time	1:20 PM	Drinking Wa	ter and/or Wastewater Water
End Time	1:50 PM	Length of Session	Half Hour (about 25 minutes with 5 minutes for questions and discussion)

Presentation Title: Video tour of the Anacortes Water Treatment Plant

Abstract Will provide a brief introduction of the City of Anacortes Water Treatment Plant prior to video and answer questions at the end. The City's plant includes a ballasted sedimentation system for pre-treatment, eight filters, an above ground clearwell, and a high-service pump station. The plant has the capacity to produce 42 million gallons of water per day, expandable to 55 million gallons per day. It serves approximately 56,000 residential, commercial and industrial customers.

Speaker	Isaac Brunk	E-mail	isaacb@cityofanacortes.org	
Speaker's Job Title	Water Plant Supervisor	Phone	3604281598	
Organization	City of Anacortes			
Primary Job Duties	Camellia is an Operator with the City of Anacortes			
Registrations or Certifications	Washington State Water Operator			



Date	June 7, 2022	Track	2B - F	Planning & Construction	
Start Time	12:15 PM	Drinkin	g Wate	er and/or Wastewater	Water, Wastewater
End Time	12:45 PM	Lengt Sess	h of sion	Half Hour (about 25 m for questions and discu	inutes with 5 minutes ussion)

Presentation Title: Virtual Factory Acceptance Test: Innovation developed through a Pandemic

Abstract Major pieces of equipment will often times have a Factory Acceptance Test (FAT) specified, where the Engineer of Record (EOR) travels to the factory to inspect the piece of equipment, the test setup, observe different test runs and correlate those conditions with design conditions. A FAT can mitigate schedule risk for the overall construction project by identifying issues at the factory where those issues can be more readily fixed. King County's Georgetown Wet Weather Treatment Station (GWWTS) was half-way through construction when the pandemic began, and several pieces of equipment were in fabrication in different parts of the country. The project remained flexible and adapted, and the concept of a virtual FAT began to take shape for remote witness testing. Some equipment manufacturers offered a virtual FAT, while others required it to minimize risk of exposure for their staff. The project viewed this as an opportunity to have the design EOR witness the test, instead of a proxy from a nearby consultant office. This virtual FAT also allowed more people to witness the test, including client engineering staff and operators, that normally would not be able to travel and attend. This presentation will review several pieces of equipment which were factory tested by various means, and present considerations for the future of factory testing.

Speaker	Tina Hastings	E-mail	tina.hastings@jacobs.com	
Speaker's Job Title	Senior Project Manager	Phone	4255333523	
Organization	Jacobs			
Primary Job Duties	Georgetown Wet Weather Treatment Station Project Manager			
Registrations or	Washington State Professional Engineer			

Certifications



Date	June 7, 2022	Track	2C - Fa	acility Tour	
Start Time	2:25 PM	Drinkin	g Wate	er and/or Wastewater	Wastewater
End Time	3:25 PM	Lengt Sess	h of sion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Virtual Tour of the Georgetown Wet Weather Treatment System

Abstract The GWWTS is a 70 MGD CSO treatment plant currently nearing completion in the Georgetown neighborhood of Seattle. The tour will explain the project goals and approach and walk through the facilities discussing the various elements and how they integrate into a complete facility. This will include CSO diversion from the interceptor sewers, screening, equalization basin, pumping, ballasted sedimentation treatment, UV disinfection, solids storage, outfall to the Duwamish River, chemical addition, instrumentation and control, and integration into the neighborhood.

Speaker	Jeff Lundt	E-mail jeff.lundt@kingcounty.gov
Speaker's Job Title	Principal Engineer	Phone
Organization	KCWTD	
Primary Job Duties	Mechanical Engineering lead for WTD Georgetown Wet Weather Treatment	engineering, Project Engineer for the tSystem
Registrations or Certifications	Washington State Professional Engine	eer



Date	June 8, 2022	Track	1B - \	Nastewater Treatment	(Hybrid)
Start Time	7:30 AM	Drinkin	g Wat	er and/or Wastewater	Wastewater
End Time	8:30 AM	Lengt Sess	h of ion	Full Hour (about 50 mi minutes for questions	nutes with 10 and discussion)

Presentation Title: Wastewater Chemistry 101

Abstract	This pres wastewa	resentation provides a basic understanding of some of the key chemicals used in the water treatment field, along with hands on demonstrations.					
S	peaker	Doug Kelley	E-mail	dkelley@inlande.com			
Speaker's J	ob Title	President	Phone	15096794637			
Orgar	nization	Inland Environmental Resources, Inc.					
Primary Job	Duties	Manage sales, marketing and operations for rapidly growing small company					
Registra	ations or	Ph.D. Chemist					

Certifications



Date	June 7, 2022	Track 2C -	Facility Tour
Start Time	1:50 PM	Drinking Wat	er and/or Wastewater Water
End Time	2:20 PM	Length of Session	Half Hour (about 25 minutes with 5 minutes for questions and discussion)

Presentation Title: Whatcom Falls Treatment Plant Tour

Abstract Video tour of the City of Bellingham's source water, intake and treatment plant facilities. Review of the treatment process, highlighting all key and interesting components (DAF, filtration, chemical systems and instrumentation.

Speaker	Nick Leininger	E-mail	nrleininger@cob.org
Speaker's Job Title	Chief Operator	Phone	3607787898
Organization	City of Bellingham		
Primary Job Duties	Responsible for the supervision and direction of the city watershed, water supply & treatment operations and water treatment plant operators.		
Registrations or Certifications	 Washington State Water Operator, Washington State Wastewater Operator 		