Session DescriptionsTRACK A: Collection Systems			
DAY ONE		**Tuesday, June 24, 2025**	**Collection Systems**
7:00 AM		Zoom opens, tech checks, change your names.	
7:30 AM		Welcome and introductions	
1	8:00-9:00 AM	**Solids Renewal Updates from Denmark and Beyond** Frank Dick, Wastewater Treatment Engineering Manager *City of Vancouver, Washington* Frank Dick visited Denmark where he spoke with Industry professionals about solids renewal projects and the circular economy. These are the highlights he brought back. Frank is a Chemical Engineer in the industry for over 17 years. He is currently the manager of the wastewater treatment engineering program at City of Vancouver, Washington.	
2	9:10-10:10 AM	**How Smart is that Pig?** Jessica Rinner, PE *Clackamas WES* The Bolton Force Main is over a mile long and crosses under the Willamette River. There have been 3 breaks in this force main in the past 7 years, making us wonder what condition is this pipe in? This presentation will focus on the logistics of pigging the force main, the results of the smart pig, and how the results or data gathered by the smart pig will be used to design the rehabilitation/replacement of the force main. Jessica is a Supervising Engineer and project manager with over 30 years of experience planning, designing, and rehabilitating wastewater infrastructure and pump stations. Throughout her career, she has had the opportunity to work on wastewater collection systems in Cambridge and Boston, Massachusetts; New Orleans and Baton Rouge, Louisiana; and across the United Kingdom. She is currently serving as a project manager for Clackamas Water Environment Services.	
3	10:20-11:20 AM	**Mitigating Risks in Urban Storm and Sewer System Upgrades: A Case Study in Hydraulic Resilience** Patrick Vandenberg and Ruby Mohammadi *WSP* Upgrading existing storm and sewer systems to provide resilient infrastructure poses risks and challenges that owners must overcome to safeguard public health and safety. The risks associated with construction of underground infrastructure are magnified by congested urban environments, steep topography and challenging geotechnical conditions. A case study will be presented for replacement of an aging critical sewer trunk that crosses beneath a major interstate highway, focusing on the risks associated with system hydraulics. The project utilized the Construction Manager/General Contractor (CM/GC) delivery method for design of a dual crossing of two large diameter storm and sewer pipelines. Due to the major highway, trenchless construction is required. The design team collaborated with the CM/GC to evaluate multiple trenchless storm and sewer installation methodologies against a variety of criteria including constructability, cost, public impacts, and resiliency. Patrick Vandenberg, PE is a Lead Water Resources Engineer with 7.5 years of experience as a hydrologic and hydraulic (H&H) modeler in King County, WA and over 10 years total of experience as a civil engineer. He worked on dozens of drainage and wastewater modeling projects as a Senior Civil Engineer at Seattle Public Utilities and as a Wastewater Engineer at King County Wastewater Treatment Division, including the Ship Canal Water Quality Project.	
4	11:30-12:30 PM	**Finding and Keeping Great Wastewater Operators** Siara Prpich *University of Idaho* Recruiting and keeping skilled wastewater operators is a growing challenge. With a generation of retiring experienced workers, utilities need new strategies to attract and retain talent. This presentation will cover practical ways to recruit new operators, including outreach to schools, apprenticeships, and competitive benefits. It will also explore how to create a positive work environment that encourages employees to stay. Attendees will gain simple, effective ideas to strengthen their workforce and ensure long-term success. Siara is a student at the University of Idaho, studying Environment Science. While attending school, Siara worked for the City of Moscow for 2 years as a water treatment operator. Siara was a member of the 2023 cohort of PNCWA's WAVE leadership development program.	
	12:30-1:00 PM	**LUNCH**	
	1:00 - 2:00 PM	**Building and Maintaining Effective Workplace Relationships** Mark Poling and Hannah Thomascall *Clean Water Management; Spokane County* Pulling from sources including The Five Dysfunctions of a Team, Radical Candor, and The Fearless Organization, this talk will outline some simple, implementable ways to strengthen your team and make work a more positive experience for everyone. While supervisors will find many of these ideas and concepts useful in building their team, anyone can employ them to strengthen your individual workplace relationships and create a better, more cohesive work life.	

5		Mark Poling is an independent consultant and sole proprietor of Clean Water Management, a consulting firm focusing on utility management. He is a member of the Water Environment Federation WISE Utility Management program team focused on helping utilities provide increased value through business process improvement. He has nearly 40 years of experience at Clean Water Utilities including utility management, water resource recovery facility operation, maintenance, design, and construction. Hannah Thomascall works at the Spokane County Regional Water Reclamation Facility managing the treatment plant. In addition to her work in wastewater, she has experience in regulatory compliance and environmental consulting. Hannah is the current chair of the PNCWA Sustainability and Biosolids Committee, serves on the PNCWA board, and is an active member of six other PNCWA Committees.
6	2:10-3:10 PM	**Frankenstein Chaos Creations - Commissioning & Operational Lessons Learned from Modifying "Standard" Vendor Equipment Package Systems** Kiersten Lee *MWH Constructors* The purpose of this presentation is to share lessons learned from modifying a vendor equipment package to meet specification… and the chaos that ensues. It starts innocently enough, during the design an engineer, owner or operator suggests adding a switch here, or an interlock there, not understanding these small "improvements" could result in major modifications for the respective vendor equipment package. How does this happen? This presentation will provide a series of case studies, where MWH served as the general contractor and the Commissioning Manager. Each case study will capture a vendor package "standard" that was modified to meet specifications and resulted in significant commissioning and operational challenges post installation. The purpose of this presentation is to share lessons learned, help all project stakeholders better understand when a system modification brings value or may result in chaos and the questions we should be asking during the submittal process. Kiersten manages MWH Constructors commissioning and start-up group, which includes process mechanical, I&C integration, electrical and treatment process specialists. Kiersten has a Masters of Engineering, specializing in hydraulics and water/wastewater treatment.
7	3:20-4:20 PM	**Ultrapure Water Recycling: Building Critical Wastewater Resilience in the Semiconductor Industry** John Rydzewski, PE *Carollo Engineers* It has become conventional wisdom in the United States (US) that semiconductor manufacturing is a national security issue. However, not a single computer chip could be fabricated without water. Pound for pound, water is the most significant ingredient in the production of computer chips, withdrawing upwards of five to ten million gallons per day of city water for a typical chip fab. Cognizant of the criticality of water to the chip manufacturing process, almost all fabs have implemented some type of water conservation. This has mainly been through numerous, modest internal segregation and reuse of final quality rinses. In almost all cases, the recovered or reclaimed water is not recycled back into the ultrapure water (UPW) treatment systems, but instead used as makeup water for mechanical systems (scrubbers, cooling towers, etc.) where the water does not contact the wafer. This is largely due to a perceived risk to chip manufacturing yield. As chip manufacturing process technologies transitioned from wet benches to single spray tools, the amount of easily reclaimable water has dropped significantly. However, as fab sizes and wafer throughput increase, the volume of reclaimable water has not kept pace with freshwater demands, putting stress on the environment and municipal water supply and wastewater treatment infrastructure. CHIPS Act fabs, including those with net positive water sustainability goals, will only exacerbate this situation. Having exhausted sources of easily reclaimable water, semiconductor manufacturers over the last decade have embraced an End-of-Pipe Zero Liquid Discharge (EOP/ZLD) approach to wholesale wastewater treatment and recovery of millions of gallons of water per day. However, a site water balance for a typical fab with EOP/ZLD quickly shows that the volume of reclaimed water is significantly greater than the volume demanded from evaporation and non-contact users. If the semiconductors are as critical to national security as believed, it will be necessary for the semiconductor industry to build sufficient resilience to climate change by adopting both EOP/ZLD and UPW recycling — treating fab wastewater and then feeding the UPW system with the clean water — as standard operating procedure. By the same token, advanced semiconductor manufacturing and the pursuit of Moore's Law results in progressively larger volumes of some of the world's most challenging wastewater: mostly unbuffered ultrapure water with extremely low biological oxygen demand, trace organics, trace metals, hydrogen peroxide, PFAS, nitrification inhibitors, and the whole periodic table available for future experimentation. This presentation will provide an overview of EOP/ZLD coupled with UPW recycling; the inherent benefits, challenges, risks, and perceived risks of this approach to water resilience; and why this approach should be the default path to net positive water. John Rydzewski is Vice President and Private Sector Sustainability/Resilience Lead for Carollo Engineers. He has 30 years of experience with the design, construction, and operations of water and wastewater treatment systems for the semiconductor and textile industries. In addition to high tech, John spent seven years as the Director of Water Programs at Nike World Headquarters where he built and led Nike's global water sustainability team that set corporate policy and achieved public sustainability commitments. John received his B.S. and M.S. degrees in Chemical Engineering from Clarkson University and is a licensed professional engineer.

DAY TWO	**Wednesday, June 25, 2025**	**Collection Systems**
7:00 AM	Zoom opens, tech checks, change your names.	
7:30 AM	Welcome and introductions	
	Proper Workplace Interactions in the Wastewater Field	
	Marion Barnes	

	8:00-9:00 AM	*City of Eugene*
		Most of the time, wastewater crews doing infrastructure construction or maintenance are focused solely on getting the job done well and on time. They don't have the time or interest in talking to members of the public, members of the media, or, sometimes, even other people in their department. It's understandable. But there are many instances in which work crews and leads can find themselves in the spotlight, so it's best to be prepared. Learn how to get used to attention—from media, from the public and from coworkers—and use it to your advantage!
8		Marion Suitor Barnes is public affairs manager for City of Eugene Public Works, the city's largest department. Before representing Public Works, she was director of communications for the Oregon Department of Early Learning and Care and for Western Oregon University. Deep down, she's a journalist at heart, having spent 20+ years as a writer and editor for newspapers throughout the Pacific Northwest. She also owned and operated a successful small business for 22 years. Marion lives in Eugene with Kian, a hand-me-down tuxedo cat.
	9:10-10:10 AM	**Real Time Equipment Monitoring and Condition Assessment**
		Brittany Downing + others
		City of Portland, BES
		Join the City of Portland's Bureau of Environmental Services (BES) Condition Assessment Team for a hands-on demonstration of equipment monitoring in the context of condition assessment. This interactive session will showcase the latest tools and technologies used to monitor infrastructure and assess the condition of wastewater systems. Participants will have the opportunity to engage with the equipment directly, gaining a deeper understanding of how monitoring tools help identify potential issues and improve system maintenance. The session will provide valuable insights into the process of condition assessment and demonstrate the practical application of monitoring technologies in ensuring the longevity and reliability of wastewater infrastructure.
9		
	10:20-11:20 AM	**To Be Announced**
10		
	11:30-12:30 PM	**Odor Control Basics**
		Tam Truong
		USP Technologies
		Wastewater collection systems are complex structures with dynamic hydraulics. Consequently, more than one control mechanism is often at work, and several factors should be considered in designing a cost-effective control program.
11		Tam Truong is the Pacific Northwest Territory Manager for USP Technologies. USP Technologies is a leading provider of full-service chemical treatment programs for municipal and industrial wastewater treatment applications. Serving the market for over 25 years with our consultative approach, our objective is to deliver sustainable and efficient program results that meet the highest standards of environmental stewardship.
	12:30-1:00 PM	**LUNCH**
	1:30 - 2:30 PM	**Force Main Locating**
		Noah Braukman
		Clean Water Services
		Clean Water Services is responsibile for locating their own pressure pipes (sewer and reuse). Noah will present on multiple tips and tricks for locating your pipes including design standards and field equipment.
12		Noah Braukman is the Pump Station Supervisor for Clean Water Services. Noah has 15 years of experience in pump stations and 8 years of experience in pipe locating.
	2:40-3:40 PM	**Wastewater Sludge Pumping**
		Rich Owens
		Owens Pump & Equipment
		Many types of sludge are found in a wastewater system, but why are there so many different pumps? Some do the same application, but why? We will explain why you would want to use specific types f pumps for each application specifically and provide the benefits and solutions for each.
13		Rich Owens has been in the pump business for 25+ years, working for distributors and manufacturers.
	3:50-4:50 PM	**Seismic Resilience**
		Nishant Parulekar, PE
		City of Portland, Environmental Services
		Overview of seismic vulnerabilities and resilient strategies for wastewater infrastructure.
14		Nishant Pallikar Parulekar is a licensed Professional Civil Engineer with technical experience in planning and design of water, wastewater, and recycled water projects for municipal clients. His recent areas of focus are on asset management and planning for resilient infrastructure.

DAY THREE	Thursday, June 26, 2025	Collection Systems
	7:00 AM	Zoom opens, tech checks, change your names.
	7:30 AM	Welcome and introductions
15	8:00-9:00 AM	**From Field Sampling to Community Impact: Tracking Viruses in Wastewater** Wendy Woothtakewahbitty, Leslie Dietz, and David Mickle *Oregon State University* *Wastewater surveillance begins and ends with community. Wastewater sampling provides a powerful tool for detecting viruses and monitoring public health trends. This talk will cover how field sampling locations are chosen and the techniques used to collect and process wastewater samples. We will address frequently asked questions about wastewater surveillance and discuss use of the data as well as the molecular approaches employed for viral detection.* *Leslie Dietz leads the strategic development of field sampling sites, supervises field operations, and collaborates closely with healthcare facilities, universities, and students.* *Wendy Woothtakewahbitty is a microbiologist and project manager in the Oregon Wastewater Surveillance Program at Oregon State University. She conducts outreach with utilities and local public health and manages an environmental engineering laboratory with undergraduate student employees.* *David Mickle is a molecular biologist in wastewater-based epidemiology at Oregon State University, specializing in assay development and process optimization using digital PCR (dPCR) technologies. He generates and analyzes wastewater data, reporting findings to the Oregon Health Authority to support public health surveillance.*
16	9:10-10:10 AM	**Work Zone Traffic Control Safety (4 hours, Hour 1 of 4)** Mike Eastman *ODOT Technology Transfer Center* This certification class will cover state regulations and minimum requirements for setting short term flagging operations on state and city right of way. We will cover flagger procedures and minimum requirements for setting up and working on county and city roads. At the end of a this 4-hour session the student will take the state exam and will be issued a state of Oregon flagger certification good for 3 years. Michael Eastman is an experienced Trainer with a demonstrated history of working in the traffic control industry. He has 44 years of experience in public works, including municipal traffic sign manufacture and installation, work zone traffic control, flagging, training, and nine years as manager of a small general aviation airport.
17	10:20-11:20 AM	**Work Zone Traffic Control Safety (4 hours, Hour 2 of 4)** Mike Eastman *ODOT Technology Transfer Center* This certification class will cover state regulations and minimum requirements for setting short term flagging operations on state and city right of way. We will cover flagger procedures and minimum requirements for setting up and working on county and city roads. At the end of a this 4-hour session the student will take the state exam and will be issued a state of Oregon flagger certification good for 3 years. Michael Eastman is an experienced Trainer with a demonstrated history of working in the traffic control industry. He has 44 years of experience in public works, including municipal traffic sign manufacture and installation, work zone traffic control, flagging, training, and nine years as manager of a small general aviation airport.
18	11:30-12:30 PM	**Work Zone Traffic Control Safety (4 hours, Hour 3 of 4)** Mike Eastman *ODOT Technology Transfer Center* This certification class will cover state regulations and minimum requirements for setting short term flagging operations on state and city right of way. We will cover flagger procedures and minimum requirements for setting up and working on county and city roads. At the end of a this 4-hour session the student will take the state exam and will be issued a state of Oregon flagger certification good for 3 years. Michael Eastman is an experienced Trainer with a demonstrated history of working in the traffic control industry. He has 44 years of experience in public works, including municipal traffic sign manufacture and installation, work zone traffic control, flagging, training, and nine years as manager of a small general aviation airport.
	12:30-1:00 PM	**LUNCH**
	1:30 - 2:30 PM	**Work Zone Traffic Control Safety (4 hours, Hour 4 of 4)** Mike Eastman *ODOT Technology Transfer Center* This certification class will cover state regulations and minimum requirements for setting short term flagging operations on state and city right of way. We will cover flagger procedures and minimum requirements for setting up and working on county and city roads. At the end of a this 4-hour session the student will take the state exam and will be issued a state of Oregon flagger certification good for 3 years.

19		Michael Eastman is an experienced Trainer with a demonstrated history of working in the traffic control industry. He has 44 years of experience in public works, including municipal traffic sign manufacture and installation, work zone traffic control, flagging, training, and nine years as manager of a small general aviation airport.
20	2:40-3:40 PM	**Roadside Emergencies & Hazard Awareness** Dustin Ross *Oregon Department of Transportation* Public Workers are on the roads all day, it's just a matter of time before you could be first on scene with one of these hazards, will you know what to do? This session will cover the awareness of the many unexpected hazards you could come across while working on our roadways; motor vehicle crashes, Haz-mat spills, suspicious persons, crime scenes, etc. Dustin Ross is a training specialist for ODOT.
21	3:50-4:50 PM	**Oregon City Private Lateral Rehabilitation Program - Challenges and Solutions** Kenneth Cannady-Shultz, MS, PE *City of Oregon City* *The Oregon City Inflow and Infiltration (I&I) Program needs to reduce I&I in problem areas by 65% via sewer mainline and lateral rehabilitation. The City has a mixture of materials and conditions that challenge traditional designs and construction techniques and required it to enlist assistance from Wallis Engineering to envision a comprehensive program. Private lateral rehabilitation is key to meeting program goals and poses a particular challenge.* *One of the challenges of working in Oregon's oldest city is knowledge – many properties have centuries of underlying history, reflected in the complicated and piecemeal nature of private sewer systems and paucity of as built records. Any successful rehabilitation approach needed to center flexibility, so Oregon City adopted a Contractor-led investigation and design framework that is both nimble and cost effective.* *The keystone of this approach is trenchless rehabilitation – CIPP, HDD, and pipe bursting all allow for lateral replacement in challenging situations. Paired with strategic point excavations and repairs, trenchless methods have allowed Oregon City to completely renew degraded and failed laterals running under trees, walls, and prize rose bushes safely. Our specifications provide a flat rate for all rehabilitation methods, so the fact that Contractors keep recommending trenchless rehab as option number one is a perfect example of agency and contractor goals aligning.* *Kenny Cannady-Shultz of Oregon City will discuss the implementation of a lateral rehabilitation program in one of Oregon's oldest cities using finely tuned specifications, trenchless technologies, and public outreach to facilitate construction and reach program goals.* *Kenny Cannady-Shultz is a P.E. with a master's degree from Oregon State University in Civil Engineering with a focus on hydrology. His experience includes academic advising in civil engineering programs, work with Oregon Department of Transportation, and consulting work with JBR prior to his position with Oregon City Public Works Department as a project engineer focused on sewer system capital improvement projects. He has been leading the Oregon City Inflow and Infiltration project for almost 3 years. He and his family reside in Salem, Oregon.*

Session DescriptionsTrack B: Wastewater Operations

DAY ONE	Tuesday, June 24, 2025	Track B: Wastewater Operations
7:00 AM		Zoom Opens, Tech Checks, Change Your Names.
7:30 AM		Welcome and introductions
1	8:00-9:00 AM	**Solids Renewal Updates from Denmark and Beyond** Frank Dick, Wastewater Treatment Engineering Manager *City of Vancouver, Washington* Frank Dick visited Denmark where he spoke with Industry professionals about solids renewal projects and the circular economy. These are the highlights he brought back. Frank is a Chemical Engineer in the industry for over 17 years. He is currently the manager of the wastewater treatment engineering program at City of Vancouver, Washington.
2	9:10-10:10 AM	**DEQ Operator Certification Basics** Kimi Grzyb *DEQ* The application and certification process for wastewater operators with tips to avoid mistakes, an overview of where to find the information you need on DEQ's website, and an opportunity for program feedback. Kimi is the Coordinator of the DEQ OpCert Program, she has a PhD Environmental Science, MS Applied Biotechnology/Molecular Biology, BS Biology
		I Scream, You Scream, We All Scream for PFAS Heather Jennings Director of Huma Environmental *Huma Environmental* Poly- and perfluoroalkyl substances (PFAS). As we deal with rapid regulatory changes, aging infrastructure and variable quantities of PFAS – what an operator needs to understand and how to talk to the engineers. Treatment technologies and what's on the cutting edge

3	10:20-11:20 AM	Heather Jennings is a registered professional Civil Engineer and serves as Director for Huma Environmental®, a brand of bioremediation products and services offered by Huma Inc. Heather has 20+ years' experience in project management, environmental programs, and municipal and industrial facility system analysis. She also has experience in design for both municipal water and wastewater systems. Heather is responsible for managing sales and the research and development efforts of Huma Environmental® wastewater treatment products and services. She is a published author in industry journals, a frequent conference speaker, and the host of the Water Break Podcast. Heather holds a Bachelor of Science degree in Chemical Engineering from Brigham Young University.
4	11:30-12:30 PM	**Intro to Excel: Using simple excel functions to perform complicated wastewater mathematical functions.** Mike Hawkins *Clackamas Water Envronment Services* This presentation will focus on building spreadsheets and using simple excel functions to calculate and predict Excess Thermal Load. We will also go over formulae to calculate percent removal, Chlorine contact time, and pounds calculations for BOD and TSS. Michael Hawkins is the lead operator at the Boring wastewater facility and the Hoodland wastewater treatment plant. He has been working in the wastewater field for 17 years and has a great deal of experience with small system operations.
	12:30-1:00 PM	**LUNCH**
5	1:00 - 2:00 PM	**A Breath of Fresh Air – Understanding the Importance of Diffused Aeration Systems** Bryen Woo *Aquarius Technolgies* aeration system is inexpensive compared to many other parts of a wastewater plant, the operating expense for an aeration system is very significant and accounts for approximately 49% of operating expenditures. In addition, a diffused aeration system highly contributes to meeting treatment goals. The main challenges of a diffused aeration system are to meet effluent treatment objectives while also minimizing energy usage, maintaining diffuser integrity, managing diffuser fouling and clogging, and minimizing O&M costs. Given these challenges and the importance of meeting treatment objectives, the selection of the diffuser system is a very important one for a wastewater treatment municipality. This presentation will summarize main goals, challenges, design, aeration and diffuser fundamentals, applications, importance of quality control, diffuser technologies, and case studies of diffused aeration systems. The goal of the presentation is for the audience to acquire basic knowledge of diffuser aeration system so that when selecting a diffused aeration system they can make a more informative decision. Bryen is currently Business Development Director at Aquarius Technologies and has held this position for over 2 years. He has over 20 years of wastewater treatment experience which includes biological treatment processes, diffused aeration, biosolids stabilization and resource recovery, and biological nutrient removal. He specializes in the operation and design of aerobic digestion systems. He has a Masters Degree in Environmental Engineering from California State University of Fullerton and is a registered professional Civil Engineer in California.
6	2:10-3:10 PM	**Waste Water Membrane Bio-Reactors Basics** Blake Raines *WES* This will explain the basics of wastewater membrane bio-reactors. It will include what they are made of, how they function and important plant design ideas to keep in mind. It will also include my own challenges and benefits of operating a wastewater MBR plant and lessons learned Blake Raines is a Wastewater Operator for Clackamas Water Environment Services and has worked in the wastewater operations industry for over 17 years after doing a job shadow program in high school at the Tri-City Water Resource Recovery Facility in Oregon City.
7	3:20-4:20 PM	**Safeguarding the Workforce: Preventing Serious Injuries in Wastewater** Elena Estrada (WES Safety) *WES* Preventing Serious Injuries in the Wastewater Industry. This course will review hazardous work that occurs in the wastewater industry, including the potential for serious injuries or fatalities (SIFs), and how environmental or human factors increase risks in the workplace. It will provide tools on how to identify hazards that lead to SIFs, tools to prevent incidents, and strategies for employees and supervisors to strengthen their safety program through the lens of SIF prevention. Elena Estrada is a Safety & Risk Analyst for Clackamas County Water Environment Services. She has been in the wastewater industry for 10 years, with a focus on safety for 6 years.
DAY TWO	**Wednesday, June 25, 2025**	**Track B: Wastewater Operations**
7:00 AM	Zoom opens, tech checks, change your names.	

7:30 AM		Welcome and introductions
8	8:00-9:00 AM	**Proper Workplace Interactions in the Wastewater Field**
		Marion Barnes
		City of Eugene
		Most of the time, wastewater crews doing infrastructure construction or maintenance are focused solely on getting the job done well and on time. They don't have the time or interest in talking to members of the public, members of the media, or, sometimes, even other people in their department. It's understandable. But there are many instances in which work crews and leads can find themselves in the spotlight, so it's best to be prepared. Learn how to get used to attention—from media, from the public and from coworkers—and use it to your advantage!
		Marion Suitor Barnes is public affairs manager for City of Eugene Public Works, the city's largest department. Before representing Public Works, she was director of communications for the Oregon Department of Early Learning and Care and for Western Oregon University. Deep down, she's a journalist at heart, having spent 20+ years as a writer and editor for newspapers throughout the Pacific Northwest. She also owned and operated a successful small business for 22 years. Marion lives in Eugene with Kian, a hand-me-down tuxedo cat.
9	9:10-10:10 AM	**Operating a Facility Under Construction**
		Daryl Payne and Sundeep Kaur, PE
		Portland BES
		The City of Portland Bureau of Environmental Services Columbia Boulevard Wastewater Treatment Plant Headworks facility needed upgrades. The existing 1996 era, 300-mgd headworks facility consisted of climber screens with 5/8" bar-spacing that allowed materials to pass through bar gaps and around the screen field through overflow channels during high water flow events. During high flow events the climber equipment could not keep up with heavy material loads resulting in downstream grit chamber failure due to the settling of unremoved screenings clogging the grit piping. The cascading result of the grit chamber failure was increased grit loading in the primary clarifiers and subsequently to the digesters. The existing screenings removal and handling equipment needed to be replaced, while maintaining full operation of the headworks facility. The Headworks Upgrade Project consists of replacing existing headworks equipment with five new 75-mgd capacity multi-rake bar screens, a belt conveyor, three grinders, three dual-screw washer-compactors with 500-gallon agitating hoppers, and six tipping troughs. An existing space was converted to an electrical room to house new Motor Control Centers (MCCs), and control cabinets allowing the new equipment to be installed before taking any existing equipment offline. To ensure plant operation was maintained during construction, detail shutdown duration, work sequencing, and temporary facilities requirements were developed with plant staff and specified in the contract. Delays in MCC fabrication significantly shifted the project schedule following contract award. The construction management and engineering team worked with plant staff and the contractor to allow additional outages during the wet season to keep the project schedule on track. The construction management and engineering team oversaw the detailed coordination between the equipment manufacturers, MCC manufacturer, control panel fabricator, and the City's controls team which provided equipment and process automation programming to provide seamless control and operation of the new headworks equipment. The project is currently nearing the completion of construction. Plant staff are already seeing improvements to screenings removal performance which is reducing the clogging of the grit removal system and piping.
		Daryl Payne has over ten years' experience as Certified Operator at the City of Portland Bureau of Environmental Services (Portland BES). Sundeep Kaur is a senior engineer with Portland BES. Sundeep has over ten years of experience planning, designing, and rehabilitating water and wastewater infrastructure.
10	10:20-11:20 AM	**Water Reuse Alternatives Analysis for Columbia Blvd WWTP**
		Jesse Fields, PE; Lesley Martinez, EIT; Stephan Chabane (BES)
		Tetra Tech/Portland Bureau of Environmental Services
		The Columbia Boulevard Wastewater Treatment Plant (CBWTP) is gearing up to replace their water reuse treatment system. Currently, the plant water needs are provided by approximately 4 million gallons of groundwater daily due to persistent challenges with its existing microscreen filtration water reuse system. In 2024, the Bureau of Environmental Services, with support for Tetra Tech, conducted a thorough evaluation and selected a cloth disk filter system, designed to produce up to 8 million gallons per day of Class A Recycled Water. This reliable solution will address previous operational hurdles while incorporating new filter feed pumps and a sodium hypochlorite disinfection system. This session will focus on the technical evaluation and decision-making process behind CBWTP's innovative approach to sustainable water treatment.
		Stefan is a Wastewater Analyst with 9 years of experience in the water industry. A certified grade 3 operator, Stefan has worked primarily in municipal wastewater but has a background in industrial waste treatment as well as water reuse and distribution. Jesse is a Project Engineer with a decade of experience in the municipal utilities sector. His experience in water and wastewater infrastructure includes projects from planning and feasibility through design and construction. Lesley is a Civil Engineering Intern with six years of experience working on wastewater, drinking water, and stormwater projects for small municipalities. Lesley primarily focuses on the design and construction phases of water conveyance and treatment projects.
11	11:30-12:30 PM	**Smelly Situations: Selecting Odor Control Systems for Wastewater Facilities**
		Amelia McElhinney, EIT
		Kennedy Jenks
		Odor control systems used for wastewater treatment plants are not standard across every plant. Identifying the source of the odor, considering regulatory requirements and public impact, available area for odor control systems, maintenance requirements, operational complexity, initial and operational costs, sustainability, and environmental impact all share in determining what type of technologies and processes can be implemented to mitigate facility odors. Biofilters, trickling filters, chemical scrubbers, carbon absorbers each have stand-out capabilities and short comings that make them better for some applications and less desirable for others. We will discuss different odor control systems, their potential applications, and where they have been used.
		Amelia is part of the engineering staff at Kennedy Jenks, primarily working on water transmission and wastewater treatment projects.

	12:30-1:00 PM	**LUNCH**
12	1:30 - 2:30 PM	**Doing You a Solid: Aerobic Digestion and Recuperative Thickening** Allison Lukens, PE, Amelia McElhinney, EIT *Kennedy Jenks* *This presentation will cover basic EPA and DEQ requirements for aerobic digestion, and the chemical processes that make aerobic digesters work. We will review the design criteria used in the development of aerobic digesters and discuss benefits and drawbacks of the technology.* *During the design process, every piece of equipment, from blowers to valves, should be thoroughly evaluated in order to select the best options for your plant. We will cover different types of aeration and blower technologies and discuss lessons-learned from previous projects.* *Finally, we will discuss the Three Rivers Regional Wastewater Authority aerobic digestion project, and how recuperative thickening can be used to improve the quality of digested sludge and operation of the digesters. We will address the evolution of the biosolids treatment system through the design process and provide updates from the construction phase.* *Allison is an Associate Engineer with Kennedy Jenks. She has worked on wastewater treatment and conveyance projects during her time with KJ. She has worked on water projects across the nation during her career. Amelia is part of the engineering staff at Kennedy Jenks, primarily working on water transmission and wastewater treatment projects.*
13	2:40-3:40 PM	**Fernhill Wetlands** Jeff Hart, PE *Clean Water Services* The Fernhill Wetlands is a 110-acre Natural Treatment System (NTS) in Forest Grove that is used to treat multiple constituents in wastewater. Jeff will explain the need for the NTS and how it works to help meet discharge requirements. Jeff is a Principal Engineer with Clean Water Services that works on a multiple array of projects, processes, and programs. He is also the President of the Lower Columbia Section of PNCWA.
14	3:50-4:50 PM	**Factors Impacting Dewatering** Mario Benisch *HDR* The focus of the presentation will be on providing tangible information that operators, utility managers, and engineers can apply to improve dewatering performance, future dewatering facility designs, and to further the understanding about the interrelations between liquid treatment, solids treatment, and the impact that transfers of external loads have on the receiving plant. To sum up the undelaying message; most factors impacting dewatering are outside of the dewatering building. Promoting a better understanding of the factors impacting dewaterability and dewatering performance in the context of the whole plant operation will go a long way to reduce costs associated with dewatering and hauling and increase the overall sustainability of the treatment plant operation. This presentation will specifically cover • Factors impacting dewatering and dewatering indicators • impact of EBPR and external organic waste (food waste, residential organic waste) on dewatering and • case studies from facilities that have had unique experiences related to dewatering Mario Benisch graduated from University of Stuttgart, Germany with MS in Environmental Engineering. Since 1998, he has worked with HDR in Portland OR. He is now senior wastewater process engineer with focus on nutrient removal and recovery, emerging technologies, process intensification, dewaterability, and plant data visualization.

DAY THREE	**Thursday, June 26, 2025**	**Track B: Wastewater Operations**
7:00 AM	Zoom opens, tech checks, change your names.	
7:30 AM	Welcome and introductions	
	From Field Sampling to Community Impact: Tracking Viruses in Wastewater Wendy Woothtakewahbitty, Leslie Dietz, and David Mickle *Oregon State University* *Wastewater surveillance begins and ends with community. Wastewater sampling provides a powerful tool for detecting viruses and monitoring public health trends. This talk will cover how field sampling locations are chosen and the techniques used to collect and process wastewater samples. We will address frequently asked questions about wastewater surveillance and discuss use of the data as well as the molecular approaches employed for viral detection.*	

15	8:00-9:00 AM	Leslie Dietz leads the strategic development of field sampling sites, supervises field operations, and collaborates closely with healthcare facilities, universities, and students. Wendy Woothtakewahbitty is a microbiologist and project manager in the Oregon Wastewater Surveillance Program at Oregon State University. She conducts outreach with utilities and local public health and manages an environmental engineering laboratory with undergraduate student employees. David Mickle is a molecular biologist in wastewater-based epidemiology at Oregon State University, specializing in assay development and process optimization using digital PCR (dPCR) technologies. He generates and analyzes wastewater data, reporting findings to the Oregon Health Authority to support public health surveillance.
16	9:10-10:10 AM	**Streamlining Compliance: Mastering Water Quality Permitting via YDO** Mark Bentz *DEQ* Water Quality permitting started using Your DEQ Online (YDO) on April 16, 2025. This transition aligned all water quality compliance reporting onto the internet and eliminated pen and paper submissions. Application, payment, and reporting processes are assimilated into one online platform. Most of the Department of Environmental Quality are already using YDO to support the public and collaborate internally. A phased rollout included registration, training, and support mechanisms. This is a significant change, and guidance on how to manage expectations for associated work will be communicated. Much of the information stored in YDO will be readily available and accessible with a few key strokes, offering immediate access to a large amount of environmental data. Questions and Answers about implications will follow a walkthrough for wastewater operators. Mark Bentz is a Water Quality Compliance Specialist at the Oregon Department of Environmental Quality in Portland, Oregon. He's a DMR Reviewer for Northwest Region and since 2019, he's worked with wastewater facilities on their reporting methods. When he's not reading water reports, he is also tasked with enforcements, inspections, and investigations. After work, Mark Bentz has been coaching youth sports for two decades, presently with Milwaukie High School Swim. During a successful Army career spanning over 23 years, First Sergeant (retired) Bentz led front line soldiers and specialized in leadership, reconnaissance, and security. Mark graduated with honors in June 2018 from Marylhurst University with a BA in science and environmental science.
17	10:20-11:20 AM	**Reducing Operating Costs with Energy Efficiency** Tyler Weber.P.E *AESC.Inc* Energy Trust of Oregon will share an overview of energy use in Water and Wastewater Treatment operations. This presentation will touch on common efficiency measures, real life examples of implementations, and program incentive opportunities. The presentation will be followed by a question-and-answer session. XTyler Weber began his career as an environmental consultant and has been supporting the Energy Trust Industrial efficiency program since 2020. He has worked with hundreds of industrial and municipal water and wastewater facilities across the West Coast to improve operations and decrease energy use. He is a registered Environmental Engineer in Oregon and has a chemical engineering degree from Oregon State University.
18	11:30-12:30 PM	**Optimize WWTP Mixing for Efficiency & Process Resiliency** Alden Meade *Xylem Inc* Wastewater treatment is more challenging than ever, requiring more flexibility, more accuracy, and total reliability. In the past Mixers were designed for worst case scenarios, whether flow or loading, and did not provide flexibility to meet changing mixing demands. With an increased focus on energy management and treatment optimization, mixers present an opportunity for both. Many engineers and operators have come to recognize that mixing can be improved to optimize conditions. With the increased need for Improved treatment efficiency Variable speed mixing ensures that bacteria and nutrients are consistently in motion, increasing their interaction with changing conditions. The introduction of adaptive mixers has made this control not only possible but also programmable. Attendees of this presentation will walk away with a better understanding wastewater treatment mixing and the technology available to enhance its effectiveness. In addition, they will learn different ways to monitor treatment processes and will have suggestion on control options that they can attempt at their own facilities to improve resiliency throughout the plant. Alden Meade is a Mechanical Engineer with Xylem's Flygt Mixer Group. His focus is primarily Mechanical Mixers & Mixer hydraulics in WWTP applications, Alden has over 10 years' experience in the wastewater industry and wastewater system design.
	12:30-1:00 PM	**LUNCH**
		Odor Control in the Context of Odor Impact Jonathan Gordon *Parametrix*

19	1:30 - 2:30 PM	Odor impacts like community annoyance and complaint incidence can occur when people are exposed to odor. Whether the exposure of any one person to odor results in an odor impact (e.g., that person being annoyed, that person complaining, etc.) depends on the personal characteristics of that person – their personal history of exposure, their personal connection to the source(s) responsible for the odor, their mood at the time of exposure etc – as well as the nature of the exposure. Although exposure is ultimately driven by source emissions, the nature of exposure also depends to a large degree on atmospheric dispersion. While the purpose of odor control is to minimize odor impacts, the design and day-to-day operation of odor control equipment revolves around achieving emission goals. However, because emissions are just one driver of odor impact, even consistent achievement of emission goals is no guarantee of zero odor impact. This presentation will explain why characterizing exposure and odor impacts in a meaningful way is challenging and how that, in turn, has shaped how odor is regulated as well as how odor control systems are designed and operated.
		Jonathan Gordon is a Water/Wastewater Engineer and Odor Practice Lead with Parametrix. He has a bachelor's degree in chemical engineering from the University of Virginia and a master's degree in environmental engineering from Johns Hopkins University. He has worked in the industry for twelve years and has had sniffing sewer odor as part of his job description the entire time.
20	2:40-3:40 PM	**Wastewater Lagoons Workshop: Ammonia removal and other common lagoon issues**
		Mike Hawkins
		Clackamas Water Environment Sevices
		This hour long collaborative workshop will discuss common lagoon issues and solutions that have worked in the past. Attendee participation will be strongly encouraged! We hope to share issues that have plagued lagoon operators, and unique solutions that have helped solve those issues.
		Michael Hawkins is the lead operator at the Boring wastewater facility and the Hoodland wastewater treatment plant. He has been working in the wastewater field for 17 years and has a great deal of experience with small system operations.
21	3:50-4:50 PM	**New Technologies for Nutrient Removal**
		Halley Keating, PE, MSE
		World Water Works
		This presentation will discuss some options for upgrading existing wastewater treatment systems to enhance nutrient removal and/or increase treatment capacity. The technologies discussed will include the miGRATE system of migrating biofilm carriers and the inDENSE system of selective sludge wasting technology for improved sludge settleability and nutrient removal optimization.
		Halley has more than 15 years of experience working on municipal and industrial wastewater and water process designs.

Session DescriptionsTrack C: Source Control

DAY ONE	Tuesday, June 24, 2025	Track C: Source Control
7:00 AM		Zoom opens, tech checks, change your names.
7:30 AM		Welcome and introductions
1	8:00-9:00 AM	**Solids Renewal Updates from Denmark and Beyond**
		Frank Dick, Wastewater Treatment Engineering Manager
		City of Vancouver, Washington
		Frank Dick visited Denmark where he spoke with Industry professionals about solids renewal projects and the circular economy. These are the highlights he brought back.
		Frank is a Chemical Engineer in the industry for over 17 years. He is currently the manager of the wastewater treatment engineering program at City of Vancouver, Washington.
2	9:10-10:10 AM	**Burn, Bury...or Beneficial? Vancouver's Journey to Solids Resource Recovery**
		Frank Dick, Wastewater Treatment Engineering Manager
		City of Vancouver, Washington
		The City of Vancouver is beginning the multi year process of planning for a new solids treatment train. They currently incinerate and changing to a new technology will be quite the undertaking. They are working with consultants to find the best path foarward. In addition they did tremendous work at the community level to figure out what matters most to Vancouver's citizens while keeping in mind environmental justice concerns. Come see what they are up to!
		Frank is a Chemical Engineer in the industry for over 17 years. He is currently the manager of the wastewater treatment engineering program at City of Vancouver, Washington.
		Climate Impacts in Resource Recovery
		Terrance Romaine
		Clackamas Water Environment Services
		Carbon Management in Resource Recovery

3	10:20-11:20 AM	Terrance Romaine is the Environmental Services Manager for Clackamas Water Environment Services. He oversees several programs responsible for the beneficial reuse of wastewater residuals and developing water recycling and renewable energy opportunities for the County and our Industrial Pretreatment and Watershed Protection staff. He is a passionate environmental professional with nearly 20 years of regulatory and quality assurance experience in various positions in the public sector. In addition to his years of experience in wastewater, he has a Bachelor of Science in Biology from Arizona State University and a Master of Science Technology in Environmental Technology Management from Arizona State University Polytechnic.
4	11:30-12:30 PM	**PFAS: Everything, Everywhere All at Once** Terrance Romaine, PFAS Strategies *Clackamas Water Environment Services* PFAS Terrance Romaine is the Environmental Services Manager for Clackamas Water Environment Services. He oversees several programs responsible for the beneficial reuse of wastewater residuals and developing water recycling and renewable energy opportunities for the County and our Industrial Pretreatment and Watershed Protection staff. He is a passionate environmental professional with nearly 20 years of regulatory and quality assurance experience in various positions in the public sector. In addition to his years of experience in wastewater, he has a Bachelor of Science in Biology from Arizona State University and a Master of Science Technology in Environmental Technology Management from Arizona State University Polytechnic.
	12:30-1:00 PM	**LUNCH**
5	1:00 - 2:00 PM	**Laboratory Testing for Wastewater Treatment** Patrick Leach, Laboratory Analyst , Clackamas Water Environment Services, Water Quality Laboratory *Clackamas Water Environment Services, Water Quality Laboratory* This session will describe the categories of laboratory testing that are performed to support and inform wastewater treatment facilities. Specific examples of testing within each category will be described, with an emphasis on those most often used to support process control and permit requirements of wastewater treatment facilities. Differences and challenges in methods for different phases of wastewater treatment, such as solids versus liquids and treated versus untreated or partially treated waters will also be illustrated. Patrick Leach is a laboratory analyst at Clackamas Water Environment Services (WES) in Oregon City. The laboratory at Clackamas WES provides wastewater and biosolids testing services for the agency's four wastewater treatment facilities as well as surface water testing for its watershed protection program. He oversees the microbiology section of the WES lab and also specializes in nutrient analysis. He received a bachelor's degree in Environmental Science and Biochemistry from the University of San Francisco in 1997. He then moved to Tucson, Arizona, where he taught biology laboratory classes and worked at a soil and water research lab at the University of Arizona until 2003. From 2003 until 2009, he worked as a chemist at Turner Laboratories, a private full-service environmental lab in Tucson. He moved to Clackamas County, Oregon and joined the staff at Clackamas WES in 2009.
6	2:10-3:10 PM	**Small Community, Large Brewery: a Case Study of a small community regulating a large brewery** Stephanie Kerns, Environmental Compliance Specialist *City of Newport, OR* A Case study of the process that the City of Newport has been implementing to get a single large Industrial User, a brewery, into compliance. This is a look into the challenges and successes of that process as well as how that has applied to the voluntary pretreatment program as a whole. Steph started as pretreatment coordinator at the City of Newport and has since moved into the Environmental Compliance Specialist Position.
7	3:20-4:20 PM	**Strengthening Partnerships with Local Industries through a Co-digestion Program.** Kevin Wegner Ornella Sosa- Hernandez CWS *Clean Water Services* *Clean Water Services (CWS) is developing a Co-digestion Program to utilize available digestion capacity at the Rock Creek Water Resources Recovery Facility (WRRF) and increase biogas generation. With this, CWS can consider Renewable Natural Gas (RNG) as a gas utilization option. Furthermore, this program allows CWS to better serve the district, by strengthening relationships with surrounding industries that can provide High Strength Wastes (HSW). In order to meet the gas production goals of CWS, we anticipate needing a variety of HSW sources which requires a streamlined evaluation approach. A key focus of this program is to improve our interactions with the industries by having a fast response time. This can be accomplished by both working directly with them and by conducting in-house testing.* *Ornella Sosa-Hernandez is an Operations Analyst in the Technology Development and Research group at Clean Water Services. She received her Ph.D. of Science and Engineering from the Monterrey Institute of Technology and Higher Education in Mexico specializing in Environmental Systems, after obtaining a Bachelor of Science in Biotechnology Engineering.*
DAY TWO	**Wednesday, June 25, 2025**	**Track C: Source Control**
7:00 AM	Zoom opens, tech checks, change your names.	

7:30 AM		Welcome and introductions
8	8:00-9:00 AM	**Proper Workplace Interactions in the Wastewater Field**
		Marion Barnes
		City of Eugene
		Most of the time, wastewater crews doing infrastructure construction or maintenance are focused solely on getting the job done well and on time. They don't have the time or interest in talking to members of the public, members of the media, or, sometimes, even other people in their department. It's understandable. But there are many instances in which work crews and leads can find themselves in the spotlight, so it's best to be prepared. Learn how to get used to attention—from media, from the public and from coworkers—and use it to your advantage!
		Marion Suitor Barnes is public affairs manager for City of Eugene Public Works, the city's largest department. Before representing Public Works, she was director of communications for the Oregon Department of Early Learning and Care and for Western Oregon University. Deep down, she's a journalist at heart, having spent 20+ years as a writer and editor for newspapers throughout the Pacific Northwest. She also owned and operated a successful small business for 22 years. Marion lives in Eugene with Kian, a hand-me-down tuxedo cat.
9	9:10-10:10 AM	**Pre-Treatment 101**
		Chris Desiderati
		Clackamas Water Environment Services
		Pretreatment 101 abstract: When the federal Clean Water Act was last amended in 1972, legislators envisioned a national program that would apply standards to a classes of industries that discharge to publicly owned treatment works. Federal rules developed over the next few years cemented what we know of today as the General Pretreatment Regulations, a set of requirements that regulate "indirect dischargers" to wastewater treatment plants with the goals of preventing interference, preventing pass-through, and protecting worker health. This presentation will give an overview of these goals of a pretreatment program, what it takes to implement a delegated pretreatment program, and how utilities can voluntarily implement measures to help protect their collection systems and treatment plants from surprises without a full-blown pretreatment program.
		Chris Desiderati is an Environmental Services Supervisor at Clackamas Water Environment Services. He has 10 years of experience at WES implementing and planning pollution prevention and environmental monitoring programs. Prior to his time at WES, Chris worked for an industrial chemical manufacturer and a private environmental testing lab. Chris is passionate about how various experts in the wastewater, stormwater, and environmental professions work together to protect public health and the environment. In his current role as a Supervisor, he leads a dynamic, efficient team of Industrial Pretreatment and Private/Commercial Stormwater professionals engaging with the business community in WES' service area to control pollution and provide technical assistance.
10	10:20-11:20 AM	**Enforcement Response Plans**
		Chris Desiderati
		Clackamas Water Environment Services
		Enforcement Response Plan abstract: An enforcement response plan is a component of any delegated pretreatment program. The purpose of an ERP is for utilities to develop consistent, legally-enforceable response actions against private industries that violate utility rules or issued permits. In general, ERPs have several goals including guiding staff in how to: return industries to compliance with rules and permits, deter future violations and violators, and protect public health and the environment. There are several steps to developing ERPs that will meet these goals and many challenges staff may face along the way when implementing these guidelines. This presentation will describe what an ERP is and is not, how they're developed, and how the major elements of an ERP are implemented with WES' latest ERP update.
		Chris Desiderati is an Environmental Services Supervisor at Clackamas Water Environment Services. He has 10 years of experience at WES implementing and planning pollution prevention and environmental monitoring programs. Prior to his time at WES, Chris worked for an industrial chemical manufacturer and a private environmental testing lab. Chris is passionate about how various experts in the wastewater, stormwater, and environmental professions work together to protect public health and the environment. In his current role as a Supervisor, he leads a dynamic, efficient team of Industrial Pretreatment and Private/Commercial Stormwater professionals engaging with the business community in WES' service area to control pollution and provide technical assistance.
	11:30-12:30 PM	**Protecting Wildlife with Pipe Ramming Technology**
		Brandon Falk, PE
		Consor
		The Palensky Wildlife Underpass Project (Project) installed a wildlife underpass beneath the four-lane Lower Columbia River Highway (US 30) to reconnect restored wetlands adjacent to the Columbia River to the Tualatin Mountains, northwest of Portland, Oregon. The underpass was designed to provide a safe passage corridor for the Northern Red-legged Frog, designated as a Sensitive Species, as the frogs migrate between their mountain and wetland habitats. A Feasibility Study completed in 2020 evaluated four trenchless methods for installing a 54-inch diameter, 1-inch-thick steel casing pipe to function as the underpass, with piping ramming selected as the preferred method. The road embankment fill that US30 was constructed with presented installation challenges as well as settlement risks for pipe ramming. The design also had to address the practical challenges of a construction work zone situated between US 30 and a railroad and the anatomical characteristics of the Northern Red-legged Frog. Critical design elements for Project success included approximately 600-linear feet of custom cast-in-place concrete channelizing/retaining walls, illumination light boxes, and specialty features inside of the casing to encourage usage by frogs. The Project went out for bid three times between 2022 and 2023, with construction occurring in 2024. This Presentation will discuss the multi-agency Project approach, geotechnical conditions, frog-friendly design, bidding and construction, as well as lessons learned.
		Brandon has broad range of experience with utility projects, including larger diameter pipelines, well sites, pump stations

11		Brandon has broad range of experience with utility projects, including larger diameter pipelines, well sites, pump stations, water transmission lines, gravity conveyance, culvert replacements, stream improvements, and condition assessments. With a specialty in sewer and storm rehabilitation technologies and new installations involving trenchless methods, Brandon is an active member of the North American Society for Trenchless Technology (NASTT) and presented at the 2025 No-Dig Show. He uses his construction administration and inspection experience to design for constructability and deliver user-friendly public works.
	12:30-1:00 PM	**LUNCH**
12	1:30 - 2:30 PM	**Environmental Engineering in Action at a Water Resoource Recovery Facility-Physical Processes** Chris Maher *Clean Water Services* In this session the scientific engineering principles employed in a WRRF are· explained in reference to units processes, following the flow through a WRRF. Primary Clarifier - Stoke's Law for Discrete Particle Settling Aeration Basin - Biological Growth Kinetics and Oxygen Transfer Secondary Clarifier - Flocculent Settling and Flux Chemical Dosing - Zero, First, and Second Order Reactions Filtration - Particle Interception and Backwash (Stoke's Law) The attendee at minimum gains an understanding of the vocabulary of environmental engineering. The engaged attendee will enjoy a deeper look into the core of wastewater treatment processes. Advanced attendees will vastly enhance their troubleshooting skills by being able to think critically on the particulate, microbiological, and elemental level. The presenter has given this talk, in sections, at short schools in the Pacific Northwest Clean Water Association, and has a personal passion for teaching this material, having been an Operator first, and an environmental engineer second. Chris has 20 years experience as Certified Wastewater Treatment, Operator. Operation of advanced activated sludge and biological nitrogen and phosphorus removal processes. Chris has a BS in Chemistry, Colorado State University; MSEE, Illinois Institute of Technology. He is an Oregon DEQ Wastewater System Operator, Treatment, Grade IV, 12610.
13	2:40-3:40 PM	**Environmental Engineering in Action at a Water Resoource Recovery Facility-Physicochemical Processes** Chris Maher *Clean Water Services* In this session the scientific engineering principles employed in a WRRF are· explained in reference to units processes, following the flow through a WRRF. Primary Clarifier - Stoke's Law for Discrete Particle Settling Aeration Basin - Biological Growth Kinetics and Oxygen Transfer Secondary Clarifier - Flocculent Settling and Flux Chemical Dosing - Zero, First, and Second Order Reactions Filtration - Particle Interception and Backwash (Stoke's Law) The attendee at minimum gains an understanding of the vocabulary of environmental engineering. The engaged attendee will enjoy a deeper look into the core of wastewater treatment processes. Advanced attendees will vastly enhance their troubleshooting skills by being able to think critically on the particulate, microbiological, and elemental level. The presenter has given this talk, in sections, at short schools in the Pacific Northwest Clean Water Association, and has a personal passion for teaching this material, having been an Operator first, and an environmental engineer second. Chris has 20 years experience as Certified Wastewater Treatment, Operator. Operation of advanced activated sludge and biological nitrogen and phosphorus removal processes. Chris has a BS in Chemistry, Colorado State University; MSEE, Illinois Institute of Technology. He is an Oregon DEQ Wastewater System Operator, Treatment, Grade IV, 12610.
14	3:50-4:50 PM	**Environmental Engineering in Action at a Water Resoource Recovery Facility-Chemical Processes** Chris Maher *Clean Water Services* In this session the scientific engineering principles employed in a WRRF are· explained in reference to units processes, following the flow through a WRRF. Primary Clarifier - Stoke's Law for Discrete Particle Settling Aeration Basin - Biological Growth Kinetics and Oxygen Transfer Secondary Clarifier - Flocculent Settling and Flux Chemical Dosing - Zero, First, and Second Order Reactions Filtration - Particle Interception and Backwash (Stoke's Law) The attendee at minimum gains an understanding of the vocabulary of environmental engineering. The engaged attendee will enjoy a deeper look into the core of wastewater treatment processes. Advanced attendees will vastly enhance their troubleshooting skills by being able to think critically on the particulate, microbiological, and elemental level. The presenter has given this talk, in sections, at short schools in the Pacific Northwest Clean Water Association, and has a personal passion for teaching this material, having been an Operator first, and an environmental engineer second. Chris has 20 years experience as Certified Wastewater Treatment, Operator. Operation of advanced activated sludge and biological nitrogen and phosphorus removal processes. Chris has a BS in Chemistry, Colorado State University; MSEE, Illinois Institute of Technology. He is an Oregon DEQ Wastewater System Operator, Treatment, Grade IV, 12610.
DAY THREE	**Thursday, June 26, 2025**	**Track C: Source Control**
7:00 AM	Zoom opens, tech checks, change your names.	
7:30 AM	Welcome and introductions	

15	8:00-9:00 AM	**From Field Sampling to Community Impact: Tracking Viruses in Wastewater**
		Wendy Woothtakewahbitty, Leslie Dietz, and David Mickle
		Oregon State University
		Wastewater surveillance begins and ends with community. Wastewater sampling provides a powerful tool for detecting viruses and monitoring public health trends. This talk will cover how field sampling locations are chosen and the techniques used to collect and process wastewater samples. We will address frequently asked questions about wastewater surveillance and discuss use of the data as well as the molecular approaches employed for viral detection.
		Leslie Dietz leads the strategic development of field sampling sites, supervises field operations, and collaborates closely with healthcare facilities, universities, and students. Wendy Woothtakewahbitty is a microbiologist and project manager in the Oregon Wastewater Surveillance Program at Oregon State University. She conducts outreach with utilities and local public health and manages an environmental engineering laboratory with undergraduate student employees. David Mickle is a molecular biologist in wastewater-based epidemiology at Oregon State University, specializing in assay development and process optimization using digital PCR (dPCR) technologies. He generates and analyzes wastewater data, reporting findings to the Oregon Health Authority to support public health surveillance.
16	9:10-10:10 AM	**Brewing Responsibly: Navigating Brewery Wastewater Regulations**
		Zach Foster
		City of Eugene
		Brewery Wastewater Permittng, Breweries produce and discharge large volumes of industrial wastewater with corrosive contaminants that may be easily overlooked but can have large impacts on receiving streams, conveyance systems, and worker health and safety. In this presentation, Zach discusses the history of the Industrial Pretreatment Program, EPA's "Significant Industrial User" designations, and how wastewater regulations apply specifically to production breweries. Case studies are included using several examples with varying permit requirements. Regulatory alternatives and proactive measures are also discussed for breweries that do not necessarily qualify for a permit but still require oversight or Best Management Practices to prevent damage and disruptions to wastewater treatment facilities and conveyance systems.
		Zach Foster is an Environmental Compliance Specialist with City of Eugene and manages Industrial Pretreatment Permits. He has been in this role for two years. Prior to coming to work for the City of Eugene, he worked for eight years at Hop Valley Brewing, a regional brewery in Eugene. He was Quality Manager and managed the QA/QC laboratory, as well as performing various other roles including brewing, recipe development, automation programming and IT, and EHS.
17	10:20-11:20 AM	**Creating and implementing a pro-active Industrial/Commercial Stormwater Inspection program from scratch**
		Rob Livingston
		WES
		Creating and implementing a pro-active Industrial/Commercial Stormwater Inspection program from scratch. Lessons learned along the way.
		Rob Livingston is a Technical Services Specialist at Clackamas Water Environment Services and a graduate of CCC's Water Technology Program (or whatever it's called now) and has been performing Industrial Pretreatment, Source Control and Stormwater duties at WES & the cities of Milwaukie and McMinnville since 1998.
18	11:30-12:30 PM	**Surface Water Management at WES-Preventing Non-Point Source Wastewater Pollution**
		Gale Shaloum
		WES- Clackamas Water Environment Services; Natural Resources Scientist
		WES works to prevent non-point source wastewater pollution through eight control measures: Public education, Public involvement, Illicit discharge detection and elimination, Construction site runoff controls, Post-construction runoff controls, Pollution prevention/good housekeeping, Commercial/industrial inspections, and Stormwater/Collection facility O&M. In addition to prevention, we also conduct stream restoration projects, stormwater facility retrofits and other construction projects. Come hear about the many facets of protecting our water resources.
		Gail Shaloum is a Technical Services Coordinator for Clackamas Water Environment Services. She manages riparian and stream restoration projects, manages the RiverHealth Stewardship grant program, oversees the Watershed Health Education Program, and has been with WES since 2011. She is a natural resources scientist and landscape architect with over 30 years of experience working in stream restoration, wetland mitigation, stormwater management, NEPA compliance, and low impact development practices—in both the public and private sectors. She is a graduate of Rutgers University and Oregon Graduate Institute.
	12:30-1:00 PM	**LUNCH**
		Oregon Association of Clean Water Agencies Model FOG Ordinance Updates
		Jill Hoyenga
		Regulatory Compliance Manager

19	1:30 - 2:30 PM	An ordinance to abate fats, oils and grease (FOG) is part of a comprehensive approach to Capacity, Management, Operations and Maintenance. (CMOM). US EPA found that grease from restaurants, homes, and industrial sources are the most common cause (47%) of reported sewer blockages. FOG abatement is a pretreatment requirement. But, overlapping jurisdictions impact utility efforts. Installing FOG abatement equipment is in the jurisdiction of the plumbing code. Oregon Health Authority and the Oregon Dept. of Agriculture requirements cause FOG discharge. The OR-ACWA model ordinance helps utilities adopt an ordinance that collaborates with other jurisdictions. Most NPDES permits include requirements to prevent and report sanitary sewer overflows. FOG interference has proven to be a significant cause of sanitary sewer overflows. Pretreatment program coordinators and wastewater collection operator can work together on FOG abatement efforts. But such efforts must have a strong ordinance that leverages the full authority of the utility's jurisdiction. This presentation offers a model for building a strong FOG abatement ordinance. Jill has worked at the City of The Dalles Public Works Department since 2017. She is responsible for ensuring that the City is in compliance with water, wastewater, stormwater and transportation regulations. She manages the Industrial Pretreatment Program for the City, which includes a robust FOG abatement program. She served on the Oregon Association of Clean Water Agencies FOG Working Group that developed the model ordinance and served as primary author of the model.
20	2:40-3:40 PM	Collaborative FOG Enforcement Jill Hoyenga *Regulatory Compliance Manager* US EPA found that fats, oils and grease (FOG) from restaurants, homes, and industrial sources are the most common cause (47%) of reported sewer blockages. FOG abatement is a pretreatment requirement and is part of a comprehensive approach to Capacity, Management, Operations and Maintenance (CMOM). But, overlapping jurisdictions impact utility efforts. Sometimes internal communication barriers cause utilities to miss opportunities to effectively keep FOG from causing sanitary sewer overflows. This presentation offers several case studies that show how a collaborative approach can streamline efforts to keep FOG out of sanitary sewers. CEU Relevance Statement: Most NPDES permits include requirements to prevent and report sanitary sewer overflows. FOG interference has proven to be a significant cause of sanitary sewer overflows. Pretreatment program coordinators and wastewater collection operator can work together on FOG abatement efforts. Such efforts are more effective when using a collaborative approach. This presentation offers case studies that demonstrate collaboration in FOG prevention and enforcement. Jill has worked at the City of The Dalles Public Works Department since 2017. She is responsible for ensuring that the City is in compliance with water, wastewater, stormwater and transportation regulations. She manages the Industrial Pretreatment Program for the City, which includes a robust FOG abatement program. She served on the Oregon Association of Clean Water Agencies FOG Working Group that developed the model ordinance and served as primary author of the model.
21	3:50-4:50 PM	**Update on Mobile Food Units – Mouthwatering or Miasma** Jill Hoyenga *Regulatory Compliance Manager* Mobile Food Units (MFU) are a booming food service establishment segment. They are considered to be a small business opportunity with low initial investment. Until 2020 mobile food units had relatively little regulation in Oregon. The lack of authority to regulate and enforce led to several years of sanitary and storm sewer violations with few consequences. The regulatory landscape has changed. But, wastewater utilities have not been kept in the loop. The purpose of this presentation is to make wastewater and stormwater operators aware of the issues and the authorities having jurisdiction when violations occur. FOG violation prevention and enforcement efforts are more effective when using a collaborative approach. CEU Relevance Statement: Most NPDES permits include requirements to prevent and report sanitary sewer overflows. FOG interference has proven to be a significant cause of sanitary sewer overflows. MS4 permits require utilities to prevent harmful discharges into storm water catch basins. Pretreatment program coordinators, wastewater collection operators and storm water conveyance operators can work together on FOG abatement efforts. Such efforts are more effective when using a collaborative approach. Jill has worked at the City of The Dalles Public Works Department since 2017. She is responsible for ensuring that the City is in compliance with water, wastewater, stormwater and transportation regulations. She manages the Industrial Pretreatment Program for the City, which includes a robust FOG abatement program. She served on the Oregon Association of Clean Water Agencies FOG Working Group that developed the model ordinance and served as primary author of the model.