

<b>Water Environment School</b>		TRACK A	
June 25th-27th 2024			
<b>Collection Systems: Operations &amp; Maintenance, Safety, Asset Management</b>			
<b>TUESDAY</b>		<b>June 25</b>	
<b>#1</b>	<b>KEYNOTE</b>	<b>8:00-9:00am</b>	<b>Does AI Make a Difference? Case Studies of AI's Impact on Sewer Assessment, Asset Management, and System Planning</b>
	<b>Presenter Names:</b>		Daniel Buonadonna, PE
	<b>Presenter Company:</b>		Jacobs
	<b>Presentation Abstract:</b>	Artificial intelligence (AI) solutions for sewer CCTV defect coding and analysis have now been in the US marketplace for over a year. In that time, municipalities have had opportunities to pilot different offerings and evaluate the efficacy of this technology for the asset management of their collection systems. This presentation will present different case studies of Jacobs' AI solution performance and impact on lifecycle ownership costs for sewer utilities. The case studies involve utilities within and outside the Pacific Northwest that used AI to assess raw sewer CCTV video, and also used human inspectors to code the same videos in order to conduct a comparison.	
	<b>Presenter Bio:</b>	Dan Buonadonna is a Global Principal for Jacobs's Condition Assessment and Rehabilitation Services (CARS) practice. He has over 22 years of pipeline analysis, design, and rehabilitation experience and currently serves on the executive board of directors for the North American Society of Trenchless Technology (NASTT).	
		<b>9:00-9:10am</b>	
<b>#2</b>		<b>9:10-10:10am</b>	<b>Odor Control in the Context of Odor Impact</b>
	<b>Presenter Names:</b>		Jonathan Gordon
	<b>Presenter Company:</b>		Parametrix
	<b>Presentation Abstract:</b>	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.	
	<b>Presenter Bio:</b>	Bio: 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.	
		<b>10:10-10:20am</b>	
<b>#3</b>		<b>10:20-11:20am</b>	<b>City of Bellevue Pipe Defect Evaluation and Trenchless Repairs</b>
	<b>Presenter Names:</b>		Craig Christensen, PE

	<b>Presenter Company:</b>	David Evans and Associates, Inc.
	<b>Presentation Abstract:</b>	<p>This presentation covers efforts by the City of Bellevue, Washington to address a large backlog of sewer and storm drain pipe defects. First, David Evans and Associates, Inc. (DEA) and their consultant team (Jacobs Engineering Group and Osborn Consulting) worked with the City to:</p> <ul style="list-style-type: none"> <li>• Track the pipes with defects using a large master spreadsheet and folders</li> <li>• Prioritize the pipes with defects using existing information</li> <li>• Evaluate the pipes with defects using CCTV video inspection, site visits, and survey</li> </ul> <p>Next, the consultant team created two design packages based on the recommended site and defect-specific repair method (trenchless or dig and repair). This presentation will focus more on the trenchless design package including the following repair methods:</p> <ul style="list-style-type: none"> <li>• Cured-in-place pipe (CIPP) full length lining</li> <li>• CIPP spot repair lining</li> <li>• CIPP tee/lateral lining</li> <li>• A combination of CIPP tee/lateral lining and full length lining</li> <li>• Pipebursting</li> </ul> <p>This presentation will also include other relevant project experience involving trenchless construction methods.</p>
	<b>Presenter Bio:</b>	<p>Bio: Craig is a Project Manager at David Evans and Associates, Inc. where he has served special purpose districts and cities in western Washington for his entire career. In this capacity, he has gained the confidence of his clients to understand their needs beyond the project's limits, in the context of the agency's challenges and opportunities. His communication skills and organized project approach assure his clients that their projects are addressed efficiently and completely. He has design and project management experience in a wide variety of projects including sewer, water, and storm. He also has significant experience with projects using trenchless construction methods such as pipebursting, cured-in-place pipe lining, and sliplining. In his free time, he loves spending time with his wife and three young kids, playing basketball, working out, and volunteering at his church.</p>
		<b>11:20-11:30am</b>
<b>#4</b>		<b>11:30-12:30pm</b> <b>No flow meter? No Problem - Quantifying Benefits and Return on Investment for I&amp;I Repairs</b>
	<b>Presenter Names:</b>	Nandita Ahuja, PE; Guillermo Regalado, PE; and Sean Fitzgerald, PE
	<b>Presenter Company:</b>	Hazen and Sawyer

	<b>Presentation Abstract:</b>	<p>Erratic climate patterns coupled with aging sewer infrastructure has caused many utilities to worry about their wet weather management strategies. One of the major contributors to wet weather flows is Infiltration and Inflow (I/I) which is a function of pipe material, pipe age, groundwater level and precipitation. In some cases, when groundwater level is above the invert elevation of the sewer collection pipes, I/I can also result in increased dry weather flows. With many utilities across the country planning major infrastructure sewer network upgrades due to ageing infrastructure, areas with highest I/I are usually a low hanging fruit to minimize wet weather flows. However, quantifying the benefits of such sewer upgrades is often difficult due to limited flow measurements typically available across sewersheds where upgrades are performed. The lack of flow measurements coupled with climate variability year over year render the use of simple 'before' and 'after' comparisons ineffectual. To avoid the bias and uncertainty due to climate variability, a different methodology is required to compare data and quantify impacts. This study investigates an alternate methodology of using pump station energy consumption data in lieu of flow measurements for quantifying the benefits for approximately \$20 million in investments made by a utility<sup>1</sup> for rehabilitation of 210,000 linear feet of sewer pipe across six (6) sewersheds. This paper will review the approach of using a "control sewershed" i.e. a sewershed not having undergone any repairs, with similar characteristics as that of the sewershed undergoing rehab, to eliminate bias and using this alternate approach to quantify reduction in flows as a result of the I/I repairs. This paper will also review the approach for quantifying the return on investment for the rehabilitation as well as cost savings as a result of deferred treatment capacity expansions for the receiving wastewater treatment facility.</p>
	<b>Presenter Bio:</b>	<p>Nandita Ahuja is a licensed Water and Wastewater Engineer who works with teams focused on designing and improving infrastructure for cities and counties so that clean water can be reliably supplied to their customers and the generated wastewater can be adequately treated and disposed. She has more than nine years of experience and is passionate about the environment and natural resources.</p> <p>Guillermo Regalado has decades of experience as a team leader and project director for water resources projects in Florida, Puerto Rico, and South America. His technical responsibilities have included hydrologic and hydraulic analysis and modeling, evaluating flood mitigation strategies, analyzing and designing urban drainage systems, studying groundwater and surface water interaction, evaluating sea level rise effects, and conducting vulnerability assessments.</p> <p>Sean Fitzgerald serves as Hazen's Conveyance Group Leader and CMOM Subject Matter Expert. He has extensive experience helping utilities proactively plan for operations, assessment, and renewal. He has helped lead the development of key software tools to help ensure project efficiency. A long-standing member of WEF's Collection System Committee, Sean served as Vice Chair and co-authored two of the leading Manuals of Practice.</p>
		<p><b>12:30-1:00pm</b> LUNCH BREAK</p>
#5		<p><b>1:00-2:00pm</b> <b>Advancing Sewer Management with Artificial Intelligence: Results from Pilot Testing AI Tools for Sewer Condition Assessments</b></p>
	<b>Presenter Names:</b>	Austin Wong and Natalie Reilly
	<b>Presenter Company:</b>	Carollo Engineers

	<b>Presentation Abstract:</b>	<p>Condition assessment of sewer systems is critical to maintaining system structural integrity and functionality and to identifying pipes requiring rehabilitation before they deteriorate past the point of renewal. Inspection of wastewater collection systems is typically completed using closed-circuit television (CCTV) cameras to provide visual inspection of the underground infrastructure. Trained technicians then review the videos, identify defects, and provide a condition rating of each pipe that has been inspected.</p> <p>The recent development of artificial intelligence (AI) tools have the potential to advance the state of the practice of sewer condition assessments. AI algorithms are being developed to automatically identify defects from inspection footage. AI can also be used to identify poor quality videos so that the pipes can be reinspected. AI algorithms for defect autocoding have the potential to improve the accuracy of defect coding and reduce the time required to complete defect coding and pipe scoring. However, the use of AI for autocoding defects is not widespread and the benefits have not been documented beyond a handful of pilot studies.</p> <p>As part of the City of Salem’s Wastewater Collection System Master Plan, the City evaluated the ability of AI algorithms to automatically code CCTV video and obtain sewer condition assessment data. Two CCTV autocoding vendors were chosen for the pilot study. The pilot study included selecting a wastewater basin with available fully coded CCTV data, establishing testing parameters, and comparing the autocoded results to the City’s own coding. Results of the autocoded CCTV videos from each vendor were compared to results provided by the City in the following categories:</p> <ol style="list-style-type: none"> <li>1. Recall: AI able to find any defect within one foot (plus or minus) of City defect.</li> <li>2. Precision: AI able to find same defect within one foot (plus or minus) of City defect.</li> <li>3. Accuracy: AI matches the same grade level of City defect.</li> </ol> <p>This presentation will describe the approach taken to evaluate if defect autocoding is a viable option for their inspection of their sewer system. Results of the comparison along with lessons learned and recommendations for implementation of AI for CCTV autocoding will also be presented.</p>
	<b>Presenter Bio:</b>	<p>Austin is a Senior Infrastructure Engineer with Carollo in their Seattle office. His 14 years of experience includes the planning, design, and construction of various water and wastewater projects.</p> <p>Natalie is a Senior Planning Engineer with Carollo in their Portland office. Her 8 years of experience spans wastewater and water planning, including hydraulic modeling, scenario planning, and design optimization.</p>
		<b>2:00-2:10pm</b>
#6		<b>2:10-3:10pm</b> <b>Emergency Repair Catalyzes Fast-Tracked Improvements: the Bolton Pump Station Story</b>
	<b>Presenter Names:</b>	Jessica Rinner, PE and Adam Crafts, PE
	<b>Presenter Company:</b>	Clackamas WES; Consor

	<b>Presentation Abstract:</b>	<p>Clackamas Water Environment Services (WES) owns and operates three pump stations and force mains, originally constructed in the 1980's, that collect sewage from West Linn, Oregon and pump it across the Willamette River to an Interceptor sewer in Oregon City. One of these pump stations includes the 5.0 MGD Bolton Pump Station with a 16-inch diameter ductile iron force main.</p> <p>The force main experienced a breaks in both May of 2017 and February 2021 in a heavily wooded area in the Maddox Woods park. After the second break in the force main, WES faced a decision to either remove many mature fir and cedar trees to replace the section of the force main that had experienced the breaks or realign the pipeline to follow a walking path that increased the static head on the pumps. Knowing the pump station needed additional maintenance and reliability improvements, WES made the decision to protect the trees and kick off a more comprehensive project.</p> <p>This presentation will tell the story of the force main repairs and the follow up evaluation and improvements to increase the pump head limits, increase firm pumping capacity, and replace additional sections of the force main that had significant corrosion. It will outline the approach to provide interim back up pumping, accelerate the schedule to procure long lead equipment, and report on the construction phase improvements. The audience will also learn about the unique system hydraulics and use of an intertie connection with another pump station to assist with bypassing during construction.</p>
	<b>Presenter Bio:</b>	<p>Jessica Rinner, PE - Civil Engineering Supervisor, Clackamas WES          Jessica is a Supervising Engineer and project manager with almost 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.</p> <p>Adam Crafts, PE - Principal Engineer, Consor North America          Adam is a Principal Engineer and project manager at Consor focused on delivering water and wastewater infrastructure in Oregon and Washington. Adam has over 21 years of experience as a consulting engineer for local agency clients.</p>
		<b>3:10-3:20pm</b>
<b>#7</b>		<b>3:20-4:20pm</b>
	<b>Presenter Names:</b>	Chris Walters
	<b>Presenter Company:</b>	Dunn Carney LLP
	<b>Presentation Abstract:</b>	Chris Walters, a partner at the law firm of Dunn Carney LLC in Portland with decades of experience representing public agencies, will discuss the choice of delivery methods in public procurement. Learn about the difference between traditional design-bid-build, construction manager/general contractor (CM/GC), design-build, and emergency and sole-source procurement methods in Oregon.
	<b>Presenter Bio:</b>	Chris Walters has more than 35 years of experience assisting clients in the areas of real estate, business transactions, venture formation and governance, construction, public agency representation, and all aspects of project funding, development and management.
		<b>4:20-4:30pm</b>
<b>WEDNESDAY</b>		<b>June 26</b>

#8	KEYNOTE	8:00-9:00am	<b>Discovery Clean Water Alliance - Columbia River Outfall and Effluent Pipeline Integrated Project Delivery In A Complex Operational and Construction Environment</b>
	<b>Presenter Names:</b>		John Peterson and Bob Sanguinetti
	<b>Presenter Company:</b>		Discovery Clean Water Alliance
	<b>Presentation Abstract:</b>		The presentation will provide insights and lessons learned from the effort to plan, design, permit, and construct a new Columbia River outfall for the Salmon Creek Treatment Plant in Vancouver, WA. The \$37 million project installed 7300 feet of 48-inch pipe terminating with a new diffuser system in the Columbia River, while connecting to and maintaining flow from an operating facility. Challenges for the project include navigating a complex environmental permitting process during the global pandemic, engineering considerations for managing air and flow in the pipeline over a wide range of operational conditions and utilizing several specialized construction techniques and technologies.
	<b>Presenter Bio:</b>		Mr. Peterson holds a bachelor's degree in Civil Engineering and a master's degree in Environmental Engineering. He is a licensed professional engineer in Oregon and Washington. Mr. Peterson is an accomplished wastewater project and program manager. During his private sector career, he delivered a variety of wastewater treatment projects for clients throughout the Pacific Northwest. Mr. Peterson has worked for the Clark Regional Wastewater District since 2002, initially as an engineer delivering an \$80 million treatment system expansion project while building regional consensus for the program. Mr. Peterson then became the General Manager of the District in 2008. During his time as General Manager, Mr. Peterson has moved the District forward to become a leading utility in the state, implementing next generation programs based on the Effective Utility Management framework. Recent District successes include transferring the City of Ridgefield wastewater collection system to the District in 2014; leading the formation of a regional wastewater partnership - the Discovery Clean Water Alliance - in 2015; building the regional Discovery Corridor Wastewater Transmission System in 2016; transferring Ridgefield wastewater treatment operations to the District in 2018; and transferring the Salmon Creek Wastewater Treatment Plant operations to the District in 2022.
			Bob Sanguinetti holds a bachelor's degree in Construction from Arizona State University. Since September 2019, he has worked as the Construction Program Manager for the Clark Regional Wastewater District. Prior to coming to the District, Mr. Sanguinetti worked in the private sector for over 30 years for multiple general contractors across the western and mid-western United States, estimating and managing wastewater and water treatment facility upgrades up to \$85 million in value. During his time at the District, Bob has grown the Construction Management program from utilizing consultant support for many of the larger projects to managing all projects entirely by District staff. Mr. Sanguinetti works closely with contractors, District engineering staff, and engineering consultants to manage and deliver the District construction program successfully. Bob's unique perspective as a former contractor serves useful in overseeing all District projects—from small sewer line repairs to multi-million-dollar treatment plant expansion projects.
		9:00-9:10am	
#9		9:10-10:10am	<b>Deep Dive into Deep Infiltration</b>
	<b>Presenter Names:</b>		Kathryn Thomason
	<b>Presenter Company:</b>		Oldcastle Infrastructure

	<b>Presentation Abstract:</b>	<p>This presentation will dive into a case study from Gresham, OR where deep infiltration was used to reduce the strain on an overwhelmed MS4 system. This site had shallow perched groundwater but beneath the silt layers were permeable sands and gravels that were perfect for infiltration. By drilling deeper, the stormwater can infiltrate and reduce the burden on the existing MS4 system.</p> <p>This deep infiltration system was also installed in an existing residential street, which had tight existing utilities. By minimizing the footprint of construction and surgically targeting the location of the drywell, the construction timeline is shortened, and the risk of damaging existing infrastructure is reduced.</p> <p>These deep infiltration systems are designed to protect groundwater quality by having a minimum of five feet of vertical separation between the bottom of the drywell and the high seasonal groundwater level. Results from monitoring this deep infiltration system will also be shared.</p>
	<b>Presenter Bio:</b>	<p>Kathryn holds a B.A. in Chemical Engineering from Oregon State University and has worked in the stormwater manufacturing industry and private civil consulting. She has over 15 years of experience in stormwater treatment design including rainwater harvesting, infiltration, detention, and regional stormwater management. As an analyst of site plans, project budgets, and regulatory approvals, she works to find cost effective stormwater solutions for clients. She has worked on projects in Oregon, Washington, and California, and loves to talk all things stormwater.</p>
		<b>10:10-10:20am</b>
<b>#10</b>		<b>10:20-11:20am</b>
		<b>Managing Your Grease and Septic Haulers</b>
	<b>Presenter Names:</b>	Rick Allen
	<b>Presenter Company:</b>	BioLynceus
	<b>Presentation Abstract:</b>	<p>In this class, you will learn how to determine if you should you be accepting discharges from these entities.</p> <p>During this program, we will be covering some of the important things you need to know when it comes to taking discharges from Septic Haulers, Chemical Toilets and Grease Pumpers. It will cover many of the issues these contaminants can bring to your facility.</p> <p>What do these materials cost your plant in dollars and cents?</p> <p>Suggestions for protocols and how to regulate these discharges. You will learn about ordinances you need to implement, today: Also, how and what you should be testing and what you should be charging for these concentrated discharges to your system. In this class Rick will discuss how to prevent illegal discharges to your system.</p>
	<b>Presenter Bio:</b>	<p>Bio: Rick Allen is a visionary entrepreneur, environmentalist, and the driving force behind the groundbreaking company BioLynceus®. With an unwavering commitment to sustainability and a passion for revolutionizing the way we interact with our environment; Rick has dedicated his nearly 30-year career to creating innovative solutions that benefit both people and the planet. In 1994, Rick founded BioLynceus®, a company dedicated to harnessing the power of nature to solve some of the world's most pressing environmental challenges. Under his leadership, BioLynceus® has pioneered groundbreaking technologies that leverage the incredible potential of beneficial microorganisms. BioLynceus® has become a leader in contributing to the restoration of ecosystems, improving soil health, and promoting sustainable agriculture.</p>
		<b>11:20-11:30am</b>

#11	11:30-12:30pm	<b>Intelligent Wastewater Pumping - Station, pump and control considerations for your next RFP</b>
	<b>Presenter Names:</b>	Simon Cartwright
	<b>Presenter Company:</b>	Xylem
	<b>Presentation Abstract:</b>	We will explore the newer wastewater lift station controls which if used correctly can reduce operational costs significantly. We will also cover the optimal station design and pump considerations that are needed to implement these controls culminating in a look at the next generation of combined systems.
	<b>Presenter Bio:</b>	Simon Cartwright joined Xylem- Flygt Portland as the municipal projects representative in October 2011. Prior to this he worked at Orenco Systems for 5 years culminating as the Eastern Regional Manager, supporting their business partners east of the Rocky Mountains and internationally (Canada and South Pacific) specializing in residential on-site treatment. A native of Australia, Simon served 10 years in the Royal Australian Navy, working in both the electrical and mechanical engineering fields. After the military, he worked in engineering sales for Flygt in Australia between 1997 and 2005, helping engineers design, install, and maintain private and municipal wastewater treatment, pump stations and control systems. Simon also owned and operated a bookstore for seven years, so he's well-grounded in business management. Simon came to Oregon to be closer to his wife's family, and spends much of his time off experimenting with growing Périgord truffles at his home orchard located in Cottage Grove.
	12:30-1:30pm	LUNCH BREAK
#12	1:30-2:30pm	<b>Empowering your staff – what does it really mean?</b>
	<b>Presenter Names:</b>	Mark Poling and Hannah Thomascall
	<b>Presenter Company:</b>	Clean Water Management; Spokane County
	<b>Presentation Abstract:</b>	<p>You've read the management books that tell you a key to your team's success is empowerment, but what is staff empowerment and how can you implement it? In their research on leadership, Kouzes and Posner identify 'Enabling Others to Act' as one of the five practices of exemplary leadership. In this presentation, we will describe what empowerment is, why it matters, and what the benefits are. We will talk about some of the barriers, what happens when something goes wrong, and lay out a guide on how to get started. The presentation will also include other elements of exemplary leadership, such as creating a shared vision that produces a climate for enabling others to act.</p> <p>We'll explore enabling your team to act through fostering collaboration, creating a climate of trust, facilitating relationships, strengthening others, enhancing self-determination, developing competence and confidence, and organizing work to build competence and ownership. But what if you do all these things and someone you empower and enable makes a mistake – what do you do then? It's the moment of truth – reminding ourselves and our team members that this is a journey and that the focus is on learning and long-term improvement in a supportive environment. We will talk about how all of these elements combine to create empowerment that not only delivers greater job satisfaction for you and your team, but they also deliver better business results.</p>



	<b>Presenter Bio:</b>	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.
		<b>2:30-2:40pm</b>
#13		<b>2:40-3:40 pm</b>
	<b>Presenter Names:</b>	Michelle Beason, PE
	<b>Presenter Company:</b>	National Plant Services
	<b>Presentation Abstract:</b>	<p>Smoke testing is one of the oldest methods used to discover inflow and infiltration (I&amp;I) issues into our sewer collection systems. Inflow occurs when surface water is able to enter a system through public or private sources. Infiltration occurs when groundwater enters through structural defects in private laterals, sewer pipes, and manholes.</p> <p>Smoke testing has been an integral part of most Sewer System Evaluation Studies (SSES) as a way to quickly identify sewer cross connections with storm drain lines, structural defects in pipelines and structures, and to also locate illegal private connections like tie-ins to downspouts and surface drains, which is a significant source of inflow to a system during rain events. Smoke testing is also a good first step to quickly pinpoint areas where further, more detailed, investigations should be performed. Smoke testing can test large areas quickly and at a lower overall cost. Problem areas that are found through smoke testing can then be recommended for follow up investigations, such as Closed Circuit Television (CCTV) inspections.</p> <p>A recent smoke testing pilot using drones to locate smoke defects in easements and wooded areas will be presented.</p>
	<b>Presenter Bio:</b>	Michelle Beason received a BS in Civil Engineering from Purdue University, and is a registered California PE with over 30 years experience in planning, design, construction, and asset management of water, stormwater, and wastewater assets. She has worked as a Project Engineer for Black & Veatch, as an Asset Management Engineer with the East Bay Municipal Utility District, she owned her own Engineering & Construction firm, and for the last 14 years has specialized in multi-sensor inspections and trenchless rehabilitation of sewer, storm, and water assets. She is currently the Regional Manager for National Plant Services, Inc., covering the 12 Western States, including Hawaii and Alaska. Michelle is also active and volunteers in many industry organizations. In addition to serving as a Board Member of the Western Chapter of NASTT, she is a Board Member of NASSCO, and is Chair of the NASSCO Infrastructure Assessment Committee which manages revisions and updates to NASSCO's PACP/MACP/LACP coding.
		<b>3:40-3:50pm</b>
#14		<b>3:50-4:50pm</b>
		<b>Multi-Sensor Inspection Case Study in Gresham</b>

	<b>Presenter Names:</b>	Michelle Beason, PE and Daniel Dogar, EI	
	<b>Presenter Company:</b>	National Plant Services; City of Gresham	
	<b>Presentation Abstract:</b>	This presentation will demonstrate the value of using multi-sensor inspection (MSI) robots to get measurable data on our most critical large diameter pipelines. MSI systems typically include a combination of HD CCTV, 3D LiDar, and sonar; all collecting data simultaneously from one robotic inspection platform. The results allows system owners to quantify the extent of concrete corrosion in RCP sewers, and ovality changes in semi-rigid pipelines, that can then be used to assess remaining useful life and recommend necessary rehabilitation. The basis for this presentation will be the multi-sensor inspection project recently completed by National Plant Services for the City of Gresham on their large diameter sewer interceptors. We will summarize the data collection and analyzation process, the condition summary for the pipelines inspected during the first phase of work, and how that data will now be used to prioritize and plan future inspection phases.	
	<b>Presenter Bio:</b>	Michelle Beason received a BS in Civil Engineering from Purdue University, and is a registered California PE with over 30 years experience in planning, design, construction, and asset management of water, stormwater, and wastewater assets. She has worked as a Project Engineer for Black & Veatch, as an Asset Management Engineer with the East Bay Municipal Utility District, she owned her own Engineering & Construction firm, and for the last 14 years has specialized in multi-sensor inspections and trenchless rehabilitation of sewer, storm, and water assets. She is currently the Regional Manager for National Plant Services, Inc., covering the 12 Western States, including Hawaii and Alaska. Michelle is also active and volunteers in many industry organizations. In addition to serving as a Board Member of the Western Chapter of NASTT, she is a Board Member of NASSCO, and is Chair of the NASSCO Infrastructure Assessment Committee which manages revisions and updates to NASSCO's PACP/MACP/LACP coding.	
		<b>4:50-5:00pm</b>	
<b>THURSDAY</b>		<b>June 27</b>	
<b>#15</b>	<b>KEYNOTE</b>	<b>8:00-9:00am</b>	<b>All Eyes on You: How to Get Comfortable with Attention</b>
	<b>Presenter Names:</b>	Marion Barnes	
	<b>Presenter Company:</b>	City of Eugene	
	<b>Presentation Abstract:</b>	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!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!	

	<b>Presenter Bio:</b>	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.
		<b>9:00-9:10am</b>
<b>#16</b>		<b>9:10-10:10am</b>
	<b>Presenter Names:</b>	Brittany Downing and Sarah Burch
	<b>Presenter Company:</b>	Portland Bureau of Environmental Services; Kennedy Jenks
	<b>Presentation Abstract:</b>	<p>The City of Portland Bureau of Environmental Services (BES) Columbia Blvd Wastewater Treatment Plant (CBWTP) was first constructed in 1952 and continues to expand. Many process pipes and plumbing systems are original to the plant's construction. Prior to this project, most pipes had not been inspected internally during their lifetime or assessed for their condition and remaining useful life (RUL). The CBWTP has experienced an increase in pipe breaks in the recent years causing process areas to be shutdown, creating a detrimental impact on plants operations and a sharp increase in financial expenditures. Frequent breaks and leaks have also taken significant a toll on the operations and maintenance staff who are continuously patching piping systems to ensure reliable operations of the treatment plant.</p> <p>BES condition assessment program has engaged with Kennedy Jenks consultants to prioritize, inspect, and assess plant process piping to move BES towards proactive management of its pipe assets. The primary goal of this project is to identify BES's risk exposure due to these aging pipe assets to enable tailored and sustainable long-term replacement/ rehabilitation strategies.</p> <p>This presentation will outline the vision and catalysts for this project, along with sharing success stories and how other utilities can adopt similar programs. Attendees will learn about developing a truly integrated asset management solution, from identifying pipe assets, managing these process piping assets in CMMS, developing GIS tools, 3D scanning and modelling tools, applying risk and prioritization tools, using advanced condition assessment technology and conducting this with careful coordination with plant scheduling restraints. Finally, the presentation will focus on the aspect of creating a cultural change in managing assets, one that proactively inspects piping systems and avoids unforeseen breaks and leaks through effective risk communication long after the team members have moved on.</p>

	<b>Presenter Bio:</b>	<p>Brittany Downing has 6 years of experience working for the City of Portland Bureau of Environmental Services in the Maintenance Reliability and Asset Management Group. She supports the Condition Assessment Program and specializes in predictive maintenance strategies, such as vibration monitoring, and reliability-centered maintenance. Brittany supports inspections by researching drawings, identifying access points, reviewing inspection reports, and determining future inspection intervals and/or timeline for replacement. Brittany also assesses and optimizes maintenance and operational strategies to ensure assets are run most efficiently. Brittany graduated from Oregon State University in 2017 with a degree in Mechanical Engineering and holds an Engineering Intern License.</p> <p>Sarah Burch has 5 years of experience working for Kennedy Jenks working in asset management, environmental compliance, and stormwater treatment design. Portland BES and Kennedy Jenks embarked on a 5-year project to create the Condition Assessment Program, and Sarah has been the boots on the ground coordinating inspections, 3D scanning, and GIS mapping. Halfway through the project, she is becoming a local expert in inspection technologies and risk-based inspection strategies. Sarah graduated from RPI with a MS and BS degree in Environmental Engineering and from Oregon State University with a PhD in Water Resources Engineering.</p>
		<b>10:10-10:20am</b>
<b>#17</b>		<b>10:20-11:20am USING ACOUSTIC INSPECTION TO PRIORITIZE SEWER CLEANING</b>
	<b>Presenter Names:</b>	Gene Hallum
	<b>Presenter Company:</b>	InfoSense Northwest
	<b>Presentation Abstract:</b>	Proactive sewer line cleaning remains an important function of municipal collection system maintenance programs, but efficiently deploying resources to achieve that objective remains a tricky challenge for managers. InfoSense's acoustic-based smart water solution helps prioritize the daily deployment of a utility's resources—allowing them to inspect more and clean better.
	<b>Presenter Bio:</b>	Gene is Northwest Manager for InfoSense, Inc., manufacturer of the award-winning Sewer Line Rapid Assessment Tool, or SL-RAT. He has over 50 years of professional experience starting and managing several technology-related companies in the fields of electronics, data collection, and nutraceuticals. He studied business administration at the University of Washington. He lives in Rochester, WA, and has 3 children and 7 grandchildren. Gene loves gardening, hiking, boating and just enjoying the beauty of the Pacific Northwest.
		<b>11:20-11:30am</b>
<b>#18</b>		<b>11:30-12:30pm Work Zone Traffic Control Safety (4 hours, Hour 1 of 4)</b>
	<b>Presenter Names:</b>	Mike Eastman
	<b>Presenter Company:</b>	ODOT Technology Transfer Center
	<b>Presentation Abstract:</b>	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.

	<b>Presenter Bio:</b>	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.
	<b>12:30-1:30pm</b>	LUNCH
<b>#19</b>	<b>1:30-2:30pm</b>	<b>Work Zone Traffic Control Safety (4 hours, Hour 2 of 4)</b>
	<b>Presenter Names:</b>	Mike Eastman
	<b>Presenter Company:</b>	ODOT Technology Transfer Center
	<b>Presentation Abstract:</b>	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.
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	<b>2:30-2:40pm</b>	
<b>#20</b>	<b>2:40-3:40 pm</b>	<b>Work Zone Traffic Control Safety (4 hours, Hour 3 of 4)</b>
	<b>Presenter Names:</b>	Mike Eastman
	<b>Presenter Company:</b>	ODOT Technology Transfer Center
	<b>Presentation Abstract:</b>	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.
	<b>Presenter Bio:</b>	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.
	<b>3:40-3:50pm</b>	
<b>#21</b>	<b>3:50-4:50pm</b>	<b>Work Zone Traffic Control Safety (4 hours, Hour 4 of 4)</b>
	<b>Presenter Names:</b>	Mike Eastman
	<b>Presenter Company:</b>	ODOT Technology Transfer Center
	<b>Presentation Abstract:</b>	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.
	<b>Presenter Bio:</b>	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.
	<b>4:50-5:00pm</b>	

Water Environment School		TRACK B
June 25th-27th 2024		
<b>Wastewater Operations: Basics &amp; Beyond, Safety, Asset Management/ Technology/ Activated Sludge</b>		
<b>TUESDAY</b>	<b>June 25</b>	
<b>#1</b>	<b>8:00-9:00am</b>	<b>Does AI Make a Difference? Case Studies of AI's Impact on Sewer Assessment, Asset Management, and System Planning</b>
<b>KEYNOTE</b>		Daniel Buonadonna, PE
		Jacobs
		Artificial intelligence (AI) solutions for sewer CCTV defect coding and analysis have now been in the US marketplace for over a year. In that time, municipalities have had opportunities to pilot different offerings and evaluate the efficacy of this technology for the asset management of their collection systems. This presentation will present different case studies of Jacobs' AI solution performance and impact on lifecycle ownership costs for sewer utilities. The case studies involve utilities within and outside the Pacific Northwest that used AI to assess raw sewer CCTV video, and also used human inspectors to code the same videos in order to conduct a comparison.
		Dan Buonadonna is a Global Principal for Jacobs's Condition Assessment and Rehabilitation Services (CARS) practice. He has over 22 years of pipeline analysis, design, and rehabilitation experience and currently serves on the executive board of directors for the North American Society of Trenchless Technology (NASTT).
	<b>9:00-9:10am</b>	
<b>#2</b>	<b>9:10-10:10am</b>	<b>Anaerobic Digester Restart Protocols</b>
	<b>Presenter Names:</b>	Nate Janega
	<b>Presenter Company:</b>	Carollo
	<b>Presentation Abstract:</b>	Anaerobic digesters are the most common solids stabilization technology in municipal wastewater treatment facilities. Although they are relatively low maintenance, routine cleaning every 5-10 years helps maximize performance and prolongs the useful life of the tank. However, restarting a digester is a complex process requiring careful oversight and detailed knowledge of the plant processes. This presentation will cover best engineering practices for taking a digester out of service and restarting the process safely and efficiently. Stopping and restarting a digester requires careful coordination of digester gas, mechanical processes, solids management protocol, and digester biological health. Specific procedures vary depending on the presence of other operating digesters, fixed vs floating covers, the type and quality of solids produced at the facility, and other factors. Step-by-step instructions for managing digester maintenance will be provided, for "typical digesters", as well as an "unusual" case study from Grants Pass Oregon.
	<b>Presenter Bio:</b>	Nate Janega P.E., wastewater engineer, and biogas enthusiast at Carollo Engineers. Nate has 6 years of design and project management experience in industry, focused in process mechanical work for municipal and private wastewater treatment. He volunteers with the Mt. Everest Biogas Project, and the EPA's Cold/High Altitude Anaerobic Digester group.
	<b>10:10-10:20am</b>	
<b>#3</b>	<b>10:20-11:20am</b>	<b>Case Studies of Three Leading Filter Types in Wastewater Applications</b>
	<b>Presenter Names:</b>	Tom Geise
	<b>Presenter Company:</b>	BHC Consulting

	<b>Presentation Abstract:</b>	This presentation will examine the use of disc filters, continuous backwash granular media filters, and compressible media filters at three different facilities. Each case study will provide an overview of the technology and discuss why the technology was selected, project objectives, how the system was designed, how the system is/will be operated, measured/expected performance, and unique challenges for the application. The first case study is addition of cloth disc filters at the 5.6 MGD Redondo WWTP owned and operated by Lakehaven Water and Sewer District, which completed construction in 2022. The Redondo WWTP utilizes primary clarifiers, trickling filters, and secondary clarifiers followed by UV disinfection for treatment. The second case study is improvements to enhance performance of existing continuous backwash granular media filters at the 12.7 MGD City of Marysville WWTP, which is currently in construction. The Marysville WWTP utilizes lagoons for biological treatment and UV light for disinfection. The final case study will be replacement of existing continuous backwash granular media filters with compressible media filters at the 2.8 MGD City of Snohomish WWTP, which is currently in design. The Snohomish WWTP utilizes lagoons with submerged fixed-film media for biological treatment and peracetic acid for disinfection.
	<b>Presenter Bio:</b>	Tom Giese is a registered professional engineer with 30 years of consulting engineering experience focused primarily on wastewater treatment including facility planning, evaluation and design; process modeling; pilot testing; and construction management. Mr. Giese received both his B.S. and M.S. degrees in Civil Engineering from Oregon State University.
	<b>11:20-11:30am</b>	
<b>#4</b>	<b>11:30-12:30pm</b>	<b>Compressed Gas Mixing Technology in Wastewater Treatment Facilities</b>
	<b>Presenter Names:</b>	John Koch
	<b>Presenter Company:</b>	Enviro-mix
	<b>Presentation Abstract:</b>	This presentation will introduce compressed gas mixing technology and how it is applied in a variety of applications throughout wastewater treatment facilities. The presentation will highlight the critical components of a compressed gas mixing system and the energy and maintenance benefits of the mixing technology. Building on the core mixing technology the presentation will explore the BioMix-DC and FlexZone process solutions which are used for enhanced nutrient removal while reducing energy and chemical consumption and leveraging embedded carbon in the plant influent. The BioMix-DC Enhanced Anaerobic Mixing System delivers enhanced biological phosphorus removal (EBPR) by optimizing the anaerobic fermentation process with a unique intermittent mixing cycle. BioMix-DC is applied in both side stream and inline configurations to facilitate fermentation and boost rbCOD production to improve EBPR. The FlexZone Adaptive Process Volume System combines diffused aeration and compressed gas mixing in activated sludge reactors to adapt reactor environments to current loading condition to optimize treatment performance while minimizing energy and chemical consumption. The presentation will review how the FlexZone controller automatically transitions reactor environments between aerobic, low DO, and anoxic conditions, adapting to current and future operational needs without sacrificing treatment capacity.
	<b>Presenter Bio:</b>	John Koch is currently the vice president of technology at EnviroMix, Inc. He received his B.S. in civil engineering from Marquette University. John has 33 years of experience in the wastewater treatment space, specializing in BNR and biological wastewater treatment systems including SBRs, MBRs, MABRs, oxidation ditches, and conventional activated sludge systems. John is an active member of Water Environment Federation and a registered professional engineer in the State of Illinois.

	<b>12:30-1:00pm</b>	<b>LUNCH BREAK</b>
<b>#5</b>	<b>1:00-2:00pm</b>	<b>The Cost of being a Good Neighbor</b>
	<b>Presenter Names:</b>	Scott Cowden
	<b>Presenter Company:</b>	Jacobs
	<b>Presentation Abstract:</b>	As population densities increase and expanding residential areas encroach closer to water resource recovery facility (WRRF) property boundaries, less tolerant communities are steadily placing more pressure on facilities to implement “good neighbor” policies. The term “good neighbor” can apply to multiple criteria including odors, noise, or even safety (e.g.; removing deadly chlorine gas from a plant or controlling harmful emissions). In the context of this paper the term pertains exclusively to odor and toxic emissions control. Emissions regulations continue to become more stringent, with renewed emphasis and focus on volatile organic compounds (VOCs), toxic air contaminants (TACs), and precursor organic compounds (POCs), putting even more pressure on WRRFs.
	<b>Presenter Bio:</b>	Scott Cowden is a professional engineer with over 38 years of experience in the area of odor control applications for municipal wastewater treatment systems. His expertise includes both vapor phase and liquid phase technologies. He also has extensive experience in the area of odor control master-planning including site sampling, emissions modeling, and dispersion modeling.
	<b>2:00-2:10pm</b>	
<b>#6</b>	<b>2:10-3:10pm</b>	<b>Waste Water Membrane Bio-Reactors Basics</b>
	<b>Presenter Names:</b>	Blake Rains
	<b>Presenter Company:</b>	Clackamas Water Environmet Services
	<b>Presentation Abstract:</b>	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
	<b>Presenter Bio:</b>	Blake Rains 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 his school at the ' Tri-City Water Resource Recovery Facility in Oregon City.
	<b>3:10-3:20pm</b>	
<b>#7</b>	<b>3:20-4:20pm</b>	<b>PLC Basics, from an Operator’s Point of View</b>
	<b>Presenter Names:</b>	Skye Franyutti
	<b>Presenter Company:</b>	Clackamas Water Environment Services
	<b>Presentation Abstract:</b>	In the most basic of terms, a PLC is a computer that one can fully program to execute whatever task is needed to accomplish an automated process that meets the customer’s demands. We will discuss how PLC’s are used in the field of wastewater operations.
	<b>Presenter Bio:</b>	Skye Franyutti is a instrumentation technician for Clackamas Water Environment Services. Skye has been with WES for over 10 years.
	<b>4:20-4:30pm</b>	
<b>WEDNESDAY</b>	<b>06/26/2024</b>	
<b>#8</b>	<b>8:00-9:00am</b>	<b>Discovery Clean Water Alliance - Columbia River Outfall and Effluent Pipeline Integrated Project Delivery In A Complex Operational and Construction Environment</b>
<b>KEYNOTE</b>		John Peterson and Bob Sanguinetti
		Discovery Clean Water Alliance



		The presentation will provide insights and lessons learned from the effort to plan, design, permit, and construct a new Columbia River outfall for the Salmon Creek Treatment Plant in Vancouver, WA. The \$37 million project installed 7300 feet of 48-inch pipe terminating with a new diffuser system in the Columbia River, while connecting to and maintaining flow from an operating facility. Challenges for the project include navigating a complex environmental permitting process during the global pandemic, engineering considerations for managing air and flow in the pipeline over a wide range of operational conditions and utilizing several specialized construction techniques and technologies.
		Mr. Peterson holds a bachelor's degree in Civil Engineering and a master's degree in Environmental Engineering. He is a licensed professional engineer in Oregon and Washington. Mr. Peterson is an accomplished wastewater project and program manager. During his private sector career, he delivered a variety of wastewater treatment projects for clients throughout the Pacific Northwest. Mr. Peterson has worked for the Clark Regional Wastewater District since 2002, initially as an engineer delivering an \$80 million treatment system expansion project while building regional consensus for the program. Mr. Peterson then became the General Manager of the District in 2008. During his time as General Manager, Mr. Peterson has moved the District forward to become a leading utility in the state, implementing next generation programs based on the Effective Utility Management framework. Recent District successes include transferring the City of Ridgefield wastewater collection system to the District in 2014; leading the formation of a regional wastewater partnership - the Discovery Clean Water Alliance - in 2015; building the regional Discovery Corridor Wastewater Transmission System in 2016; transferring Ridgefield wastewater treatment operations to the District in 2018; and transferring the Salmon Creek Wastewater Treatment Plant operations to the District in 2022.
		Bob Sanguinetti holds a bachelor's degree in Construction from Arizona State University. Since September 2019, he has worked as the Construction Program Manager for the Clark Regional Wastewater District. Prior to coming to the District, Mr. Sanguinetti worked in the private sector for over 30 years for multiple general contractors across the western and mid-western United States, estimating and managing wastewater and water treatment facility upgrades up to \$85 million in value. During his time at the District, Bob has grown the Construction Management program from utilizing consultant support for many of the larger projects to managing all projects entirely by District staff. Mr. Sanguinetti works closely with contractors, District engineering staff, and engineering consultants to manage and deliver the District construction program successfully. Bob's unique perspective as a former contractor serves useful in overseeing all District projects—from small sewer line repairs to multi-million-dollar treatment plant expansion projects.
	<b>9:00-9:10am</b>	
<b>#9</b>	<b>9:10-10:10am</b>	<b>Wastewater Plant Startup and Restart</b>
	<b>Presenter Names:</b>	Rick Allen
	<b>Presenter Company:</b>	BioLynceus

	<b>Presentation Abstract:</b>	In the current world of wastewater, your plant is susceptible to kill off. Join us in an interactive discussion on the topics of how your plant gets killed or significantly impacted to cause out of compliance issues. This topic of discussion applies to every type of wastewater system from Mechanical to Lagoons and from Municipal to Industrial. We will discuss many of the toxins seen in the industry that are known to damage wastewater plants including, chemicals, Crystal Meth, Petroleum and Food Grade (Grease) Hydrocarbons along with illegal discharging to your system. The discussion will include what are the symptoms/signs of a dead or dying plant. Are there issues you need to address before the toxic hit occurs? This class will discuss your options for resurrecting your plant or stopping a complete die off. We will cover the time lines required of the many options available to you. Real life observations and different methods of successful and unsuccessful attempts to Restart an existing plant or the Startup of any type of new wastewater plant will be discussed.
	<b>Presenter Bio:</b>	Bio: Rick Allen is a visionary entrepreneur, environmentalist, and the driving force behind the groundbreaking company BioLynceus®. With an unwavering commitment to sustainability and a passion for revolutionizing the way we interact with our environment; Rick has dedicated his nearly 30-year career to creating innovative solutions that benefit both people and the planet. In 1994, Rick founded BioLynceus®, a company dedicated to harnessing the power of nature to solve some of the world's most pressing environmental challenges. Under his leadership, BioLynceus® has pioneered groundbreaking technologies that leverage the incredible potential of beneficial microorganisms. BioLynceus® has become a leader in contributing to the restoration of ecosystems, improving soil health, and promoting sustainable agriculture.
	<b>10:10-10:20am</b>	
<b>#10</b>	<b>10:20-11:20am</b>	<b>Flexible WWTP mixing for process optimization with energy savings</b>
	<b>Presenter Names:</b>	Alden Meade
	<b>Presenter Company:</b>	Xylem
	<b>Presentation Abstract:</b>	In the past, mixers have been given little consideration in the grand design of wastewater facilities. 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 overmixing not only wastes energy, but also provides sub-optimal treatment process results. Advancements in motor and VFD technology have provided higher resolution and flexibility in mixer operation & performance, allowing for more precise mixing results in wastewater treatment. Flygt has been conducting several adaptive mixing pilot projects around North America. The purpose of the pilot studies was to determine the actual energy needed to provide mixing and the amount of energy savings that can be seen when mixers are “turned down”. In addition to the studies, the basics on mixing will be presented. We will discuss mixing applications, the measurement and importance of thrust, and the energy requirements for mixing.
	<b>Presenter Bio:</b>	Alden Meade is a Mechanical Engineer with Xylem's Flygt Mixer Group. His focus is primarily Mechanical Mixers & Mixer systems in WWTP applications, Alden has over 10 years' experience in the wastewater industry and wastewater system design.
	<b>11:20-11:30am</b>	
<b>#11</b>	<b>11:30-12:30pm</b>	<b>Safety Concerns From the Influent to the Effluent of a Wastewater Treatment Plant</b>
	<b>Presenter Names:</b>	Russ Reasoner and Randall Westmoreland
	<b>Presenter Company:</b>	Oregon OSHA

	<b>Presentation Abstract:</b>	This presentation will cover a standard way to identify, document, track and improve safety, health and ergonomics hazards. We'll present a Safety and Health management foundation for promoting a safety and health culture rooted in anticipating and identifying hazards/risk; make a correction action plan; carry-out the plan; and, verify the correction effectiveness in preventing the hazard or reducing the risk in the future. And, we'll show theoretically how planning away hazards will improve the safety and work culture as non-management and management work together to reduce waste, losses, and gain in efficiency and lower injury/illness incident rate, lowering compensation and insurance premiums centered around a waste water treatment plant.
	<b>Presenter Bio:</b>	Russ has worked for Oregon OSHA health consultative services for over 28 years and my first five years as an Oregon OSHA health compliance officer. Randy has worked for Oregon OSHA for 7 years and has DBA, CSP and CIT.
	<b>12:30-1:30pm</b>	<b>LUNCH BREAK</b>
<b>#12</b>	<b>1:30-2:30pm</b>	<b>CMMS Data Management &amp; Decision Making</b>
	<b>Presenter Names:</b>	Daryll Dorman
	<b>Presenter Company:</b>	AllMax Software, JDM Company
	<b>Presentation Abstract:</b>	Computerized Maintenance Management Software, or CMMS, has a pivotal role in modern maintenance operations of wastewater treatment systems. CMMS is a comprehensive software solution designed to streamline and optimize maintenance activities within an organization. Its key features include asset management, work order management, preventive maintenance scheduling, inventory management, and robust reporting and analytics capabilities. Why is CMMS so important? Well, imagine having a system that not only tracks all your equipment and assets but also schedules preventive maintenance to avoid costly breakdowns. That's just the beginning of what CMMS can do. The benefits of CMMS are substantial. By leveraging CMMS, organizations can improve maintenance efficiency, achieve significant cost savings, increase equipment uptime, and ensure regulatory compliance.
	<b>Presenter Bio:</b>	Daryll Dorman is the Sales Manager at AllMax Software, a JDM Company, with over 20 years of experience in sales and management roles in the software industry. He has an MBA with a focus on advanced strategy and leadership and is certified in several CMMS solutions for the water and wastewater sector. Mr. Dorman's mission is to help water and wastewater treatment plants optimize their operations, compliance, and reporting with the best data management software in the market. He can leverage his skills in new business development, key account management, and customer relationship management to develop and execute effective sales strategies, build strong relationships with key clients and partners, and identify new business opportunities. He also has a passion for learning and staying updated on the latest trends and innovations in the industry. He lives in Eugene with his wife, 6 year old daughter, and 2 Australian Shepherds.
	<b>2:30-2:40pm</b>	
<b>#13</b>	<b>2:40-3:40 pm</b>	<b>Wastewater Treatment Systems 101</b>
	<b>Presenter Names:</b>	Hannah Thomascall
	<b>Presenter Company:</b>	Spokane County Regional Water Reclamation Facility

	<b>Presentation Abstract:</b>	The world of wastewater treatment can be intimidating at first – it's so much more complicated than it seems from the outside. If you're new to wastewater and working at a wastewater or water reclamation facility you are probably familiar with the treatment that your facility does. But what about all the other facilities? Are they all using the same system that you know (and love)? Probably not, each facility is a little different so that they can efficiently and successfully treat the influent they receive. This talk will discuss some basic types of treatment systems so that you can breakdown and categorize a new, unfamiliar facility. Using examples of facilities here in the Pacific Northwest, we'll cover some of the common wastewater treatment systems, including Lagoon/Pond Treatment, Conventional Treatment, Membrane Bioreactors (MBR). The components of each treatment type will be described, then the different systems will be compared in terms of cost, flow capacity, energy use, footprint size, and nutrient removal. This will allow you to not only identify a facility type but understand why that system was selected. Learning about different treatment systems is a great way to ease into wastewater (not literally) and to understand which technologies could be added to your facility efficiently and economically.
	<b>Presenter Bio:</b>	Hannah Thomascall has worked at the Spokane County Regional Water Reclamation Facility (SCRWRF) since 2021 and is currently the Water Reclamation Project Manager. Before working at the SCRWRF, she worked in environmental permitting and, briefly, at an engineering consultant firm. Hannah has a bachelor's degree in Biosystems Engineering from Auburn University.
	<b>3:40-3:50pm</b>	
<b>#14</b>	<b>3:50-4:50pm</b>	<b>register/set up a "Your DEQ online" account and Renewal videos for Wastewater certifications</b>
	<b>Presenter Names:</b>	DEQ/Video
	<b>Presenter Company:</b>	DEQ
	<b>Presentation Abstract:</b>	The first tutorial video provides a demonstration of how to register and set up an account in Your DEQ Online. The 2nd tutorial provides a demonstration of how to renew or reinstate a wastewater operator certificate in Your DEQ Online. Operators will see an overview of the renewal and reinstatement application features, and there will be a walkthrough of process for adding required CEU documents, making a payment, and certifying and submitting to DEQ.
	<b>Presenter Bio:</b>	This video tutorial is produced by DEQ and is shown with permission. Please see corporate website for company information.
	<b>4:50-5:00pm</b>	
<b>THURSDAY</b>	<b>June 27</b>	
<b>#15</b>	<b>8:00-9:00am</b>	<b>All Eyes on You: How to Get Comfortable with Attention</b>
<b>KEYNOTE</b>		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.
	<b>9:00-9:10am</b>	
<b>#16</b>	<b>9:10-10:10am</b>	<b>Energy Efficiency Optimization for Wastewater Systems</b>
	<b>Presenter Names:</b>	Kelson Redding
	<b>Presenter Company:</b>	Energy 350
	<b>Presentation Abstract:</b>	Do the best you can with what you have, then upgrade where it is most beneficial and cost effective. The best approach to optimizing energy efficiency is to first consider how can we maximize the performance of the existing systems; only after these options are understood can we begin to consider capital efficiency improvements. This presentation, brought to you by Energy Trust of Oregon, will consider the most common opportunities to optimize wastewater facility energy use with both operations and maintenance practices and capital equipment upgrades. Additionally, we will cover resources that you can tap into to help in the process and attain incentive dollars for improvements.
	<b>Presenter Bio:</b>	Kelson Redding, P.E., C.E.M. Kelson is an experienced problem solver who uses his broad experience with industrial systems as both a professional engineer and a mechanic in pursuit of energy savings projects. He has worked with many water utilities in Oregon on behalf of Energy Trust of Oregon and has found that this is one of his favorite industries to work with because of the value of the service to the community, the good people and level of opportunity.
	<b>10:10-10:20am</b>	
<b>#17</b>	<b>10:20-11:20am</b>	<b>Wastewater Polymer Who, What, When, Where and Why</b>
	<b>Presenter Names:</b>	Charles Scott
	<b>Presenter Company:</b>	Polydyne Inc
	<b>Presentation Abstract:</b>	The training will cover what polymers are, types of polymers and how they work. It will also cover where polymers are used and some key process optimization items. The training is designed to give an overview of polymer basics.

	<b>Presenter Bio:</b>	Charles Scott, Technical Sales Representative, SNF Polydyne <ul style="list-style-type: none"> <li>• 21 years in the Chemical Industry</li> <li>– 13 years in the Polymer industry</li> <li>• Consists of Manufacturing, both Operations and Management, Technical Service and Technical Sales</li> <li>• 6 years in the US Army as a Blackhawk Helicopter Crew Chief and Mechanic</li> <li>– Over 8 years of Aviation Maintenance including the 6 years on Active-Duty service in the Army</li> <li>• Lean Six Sigma Green Belt</li> <li>– Specializing in process optimization, waste and cost reduction</li> </ul>
	<b>11:20-11:30am</b>	
<b>#18</b>	<b>11:30-12:30pm</b>	<b>Wastewater Jar testing</b>
	<b>Presenter Names:</b>	Charles Scott
	<b>Presenter Company:</b>	Polydyne Inc
	<b>Presentation Abstract:</b>	This class will cover Jar testing to determine the best polymer for the Plant, Sludge and Equipment. From making down solutions, initial polymer selection, dose curve, conditioning, floc formation, floc shear and dewatering performance. This is a hands on class where the attendants will be able to actually be able to preform some of the testing.
	<b>Presenter Bio:</b>	Charles Scott, Technical Sales Representative, SNF Polydyne <ul style="list-style-type: none"> <li>• 21 years in the Chemical Industry</li> <li>– 13 years in the Polymer industry</li> <li>• Consists of Manufacturing, both Operations and Management, Technical Service and Technical Sales</li> <li>• 6 years in the US Army as a Blackhawk Helicopter Crew Chief and Mechanic</li> <li>– Over 8 years of Aviation Maintenance including the 6 years on Active-Duty service in the Army</li> <li>• Lean Six Sigma Green Belt</li> <li>– Specializing in process optimization, waste and cost reduction</li> </ul>
	<b>12:30-1:30pm</b>	<b>LUNCH BREAK</b>
<b>#19</b>	<b>1:30-2:30pm</b>	<b>Blowing Bubbles Better: Aeration Control for Practitioners</b>
	<b>Presenter Names:</b>	Jen Murphy, P.E.
	<b>Presenter Company:</b>	Parametrix
	<b>Presentation Abstract:</b>	This presentation will allow participants to develop a fundamental understanding of basic aeration control systems, system components, and how these components operate together to achieve high levels of functionality and energy efficiency. This included exploring and analyzing simple aeration control logics (e.g., DO setpoint control, Most Open Valve control).
	<b>Presenter Bio:</b>	Jen Murphy, P.E. is a project principal (PIC), project manager, and senior technical resource for projects at Parametrix, Inc. with a background in both construction and design management. Her projects center on significant instrumentation, controls, process, mechanical, electrical, and civil design components. Jen finds immense enjoyment and satisfaction in working with clients, fellow employee owners, and teaming partners to develop individual, corporate, and institutional solutions
	<b>2:30-2:40pm</b>	
<b>#20</b>	<b>2:40-3:40 pm</b>	<b>Micro Biology</b>
	<b>Presenter Names:</b>	Dan Strong
	<b>Presenter Company:</b>	Water Environment Sevices, Water Quality Specialist

	<b>Presentation Abstract:</b>	Wastewater Microbiology: Review of basic microbiology such as growth curves, favorable environmental conditions, and characterizing microbes. Examine some common microbiological processes in wastewater. Discuss helpful process control laboratory tests such as nutrients, pH, alkalinity, and dissolved oxygen, and routine microscopic examination of activated sludge for process checks.
	<b>Presenter Bio:</b>	Dan Strong has worked in the Wastewater Industry for over 20 years. He has been employed at Clackamas WES since 2001; as a Lab Analyst for over 10 years and various Operations positions for over 10 years. His current job title is Water Quality Analyst where he reviews data, prepares reports, and offers process control guidance. Dan has a DEQ Grade IV Treatment certification and a science degree in Microbiology.
	<b>3:40-3:50pm</b>	
<b>#21</b>	<b>3:50-4:50pm</b>	
	<b>Presenter Names:</b>	Kevin Wegner Ornella Sosa- Hernandez CWS
	<b>Presenter Company:</b>	Clean Water Services
	<b>Presentation Abstract:</b>	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.
	<b>Presenter Bio:</b>	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.  Kevin Wegener is an Operations Analyst for Digestion and ADM in the Water Resource Recovery Services group at Clean Water Services. He received his Associate of Applied Science from Clackamas Community College, holds a Grade IV certification for wastewater treatment system operation and has a total of 17 years of experience as an operator, senior operator and operations analyst.
	<b>4:50-5:00pm</b>	

Water Environment School June 25th-27th 2024		TRACK C
Source Control/Pollution Prevention: Industrial Pretreatment, Stormwater, Reuse & Biosolids		
<b>TUESDAY</b>	<b>June 25</b>	
<b>#1</b>	<b>8:00-9:00am</b>	<b>Does AI Make a Difference? Case Studies of AI's Impact on Sewer Assessment, Asset Management, and System Planning</b>
<b>KEYNOTE</b>		Daniel Buonadonna, PE
		Jacobs
		Artificial intelligence (AI) solutions for sewer CCTV defect coding and analysis have now been in the US marketplace for over a year. In that time, municipalities have had opportunities to pilot different offerings and evaluate the efficacy of this technology for the asset management of their collection systems. This presentation will present different case studies of Jacobs' AI solution performance and impact on lifecycle ownership costs for sewer utilities. The case studies involve utilities within and outside the Pacific Northwest that used AI to assess raw sewer CCTV video, and also used human inspectors to code the same videos in order to conduct a comparison.
		Dan Buonadonna is a Global Principal for Jacobs's Condition Assessment and Rehabilitation Services (CARS) practice. He has over 22 years of pipeline analysis, design, and rehabilitation experience and currently serves on the executive board of directors for the North American Society of Trenchless Technology (NASTT).
	<b>9:00-9:10am</b>	
<b>#2</b>	<b>9:10-10:10am</b>	<b>Wipes Update: Unraveling the Fibers of Wastewater Regulations</b>
	<b>Presenter Names:</b>	Frank Dick
	<b>Presenter Company:</b>	City of Vancouver
	<b>Presentation Abstract:</b>	Developments in roll out of legislative requirements in WA, OR, CA, IL and other states for labeling of specific unflushable products, as well as development in both "flushable" test standards for wipes products.
	<b>Presenter Bio:</b>	Frank Dick is the Wastewater Treatment Engineering Manager for the City of Vancouver, Washington. He has a chemical engineering degree and 17 years of experience in the wastewater field. He is the co-chair of the Pretreatment & Pollution Prevention Committee for NACWA and the chair of the Biosolids & Recycled Water Committee for OR ACWA. He is and has been involved worldwide with flushed wipes issues. He works with industry and water agency representatives for legislation and standards development.
	<b>10:10-10:20am</b>	
<b>#3</b>	<b>10:20-11:20am</b>	<b>Bio Solids or Resource Recovery</b>
	<b>Presenter Names:</b>	Terrance Romane
	<b>Presenter Company:</b>	WES Environmental Service Manager
	<b>Presentation Abstract:</b>	Climate Resiliency Through a Water Resource Recovery Facility Lens Learn what WES is doing to build a resilient, clean water future where people and businesses benefit, and our rivers thrive. Highlights include: * Defining climate change and what it means to our region * Examining how climate change is impacting WES' services, facilities and its people * Discovering how WES is contributing to climate change through its greenhouse gas emissions * Learning what WES is doing to reduce its carbon footprint through proactive planning and management
	<b>Presenter Bio:</b>	Terrance Romaine is the Resource Recovery Supervisor, Clackamas Water Environment Services. Terrance Romaine is the Resource Recovery Supervisor for Clackamas Water Environment Services and currently serving as the Interim Environmental Services Manager. He oversees several programs responsible for the beneficial reuse of wastewater residuals and developing water recycling and renewable energy opportunities for the County. He is a passionate environmental professional with nearly 20 years of regulatory and quality assurance experience in various positions for the public sector. In addition to his years of experience in the wastewater field, he has a Bachelor of Science degree in Biology from Arizona State University and a Master of Science Technology in Environmental Technology Management from Arizona State University Polytechnic.
	<b>11:20-11:30am</b>	
<b>#4</b>	<b>11:30-12:30pm</b>	<b>Novel Food Waste Pre-Processing and Systematic Co-Digestion to Enhance Biogas Production and Improve Solids Treatment</b>
	<b>Presenter Names:</b>	Bhargavi Subramanian
	<b>Presenter Company:</b>	Kennedy and Jenks



	<b>Presentation Abstract:</b>	Over the years, water resource recovery facilities (WRRFs) have been exploring opportunities to enhance digester gas production through addition of high strength organic wastes from food processing and other facilities. Several major challenges exist for implementing co-digestion in WRRFs including the cost of food waste (FW) pre-processing, digester stability and capacity, undesirable consequences to digester operations, downstream impacts to biosolids generation and treatment as well as the lack of operational experience. To assist WRRFs in this pursuit, two complimentary approaches were implemented in this 3-year long project performed at Silicon Valley Clean Water (SVCW), Redwood City, CA: (i) a novel pre-processing technology which selectively extracts FW from waste materials based on its viscosity rather than the more commonly used size based screening methods, and (ii) full-scale co-digestion strategies to lower the mass of dewatered cake solids requiring disposal. The strategic addition of sludge, Fats, Oil and Grease (FOG) as well as FW is intended to facilitate better “sludge-organic waste” interactions that can enhance dewatering characteristics and reduce mass of dewatered cake solids generated. This, in turn, can lower the net mass of sludge cake requiring disposal and the corresponding hauling fees, demonstrating additional benefit over the enhanced gas production. The ultimate goal of this study is to identify ways to improve co-digestion so that more utilities can implement this process. Results pertaining (but not limited to) the above-mentioned aspects of FOG and FW co-digestion, namely, preprocessing, gas production, dewatering characteristics etc. will be presented in the talk.
	<b>Presenter Bio:</b>	Dr. Bhargavi (Gavi) Subramanian is a Staff Scientist in the Applied Research Group based out of the San Francisco Bay Area offices of Kennedy/Jenks Consultants. Her focus areas include co-digestion of organic wastes, digestion operations optimization, digester foaming guidance, pilot and full-scale wastewater studies. Gavi regularly works with wastewater utilities on optimization of digester operations. She has nearly 5 years of experience in research and technology development of wastewater treatment. Gavi earned her Ph.D. in Environmental Engineering from Illinois Institute of Technology, Chicago.
	<b>12:30-1:00pm</b>	LUNCH BREAK
<b>#5</b>	<b>1:00-2:00pm</b>	<b>Veterans in the Water Workforce: Tapping one of our most valuable wastewater resources</b>
	<b>Presenter Names:</b>	Freddy Armijo, Steven Garner, Donald Jones
	<b>Presenter Company:</b>	City of Riverside Public Utilities, CA-NV Section AWWA, Warriors2WaterWorks Campaign and Cuyamaca College
	<b>Presentation Abstract:</b>	The learning objectives for this presentation about the water industry’s nexus with the military veteran community are listed below with encouragement to research further to discover personal application of the truths presented. <ul style="list-style-type: none"> <li>- Water industry is a fit for military to civilian career transitions</li> <li>- Veterans are a great fit for the water industry due to their education &amp; experience</li> <li>- International and local associations offer resources to help with the transition</li> <li>- Education &amp; credentialing opportunities may enhance their readiness</li> <li>- YOU may serve your communities and protect public health &amp; the environment NOW</li> </ul>

	<b>Presenter Bio:</b>	<p>Freddy Armijo is a Project Manager and physical security officer with the City of Riverside Public Utilities. He is the chair of the VET committee CA-NV AWWA. He is a US Marine Core veteran of 24 years and was a master sergeant combat engineer. Steven Garner, CAE, ICE-CCP, PMP, is a driven dreamer who acts to bring vision into reality. Steven is a businessperson with multiple experiences across a range of industries. Currently employed as for the Director of Certification for the California-Nevada Section of the American Water Works Association (CA-NV AWWA). Steven served as the founder of the CA-NV AWWA Veterans Engagement &amp; Transition (VET) committee. Serving now as the Chair of the international AWWA/WEF Veterans Water Workforce Initiative (VI) subcommittee. Steven is a member of the Institute for Credentialing Excellence (I.C.E.), a Certified Credentialing Professional, and published author (articles in multiple nationwide publications for credentialing &amp; water industries). Serving on multiple state and community college advisory groups provides opportunities to give back in meaningful ways to the community. Don Jones started working as a Lakes Recreation Aide for the City of San Diego Water Utilities Department in 1965. He spent eleven years in a variety of field operations, ending up as a Senior Water Utilities Supervisor. In 1976, he was chosen to be the first Safety &amp; Training Coordinator and for 19 years, was responsible for developing and managing all safety &amp; training activities. In 1995, he became the Safety &amp; Risk Manager for the Vista Irrigation District. Don was instrumental in coordinating a comprehensive organizational change effort that turned the VID into one of the best run public agencies. After "retiring" in 2007, Don refocused his attention to helping upgrade and expand the Water &amp; Wastewater Technology program at Cuyamaca College. He helped secure nearly \$2.5 million dollars in grant funding, which helped the college transform the Water &amp; Wastewater Technology program into the Center for Water Studies. He is the chief architect of the Center's Warriors2WaterWorks military recruitment campaign. Don is a longtime member of AWWA receiving the Section's Chairperson's Award in 2015 and the 2019 National AWWA Diversity and Inclusion Award.</p>
	<b>2:00-2:10pm</b>	
<b>#6</b>	<b>2:10-3:10pm</b>	<b>Screenless IFAS System Eliminates Media Loss and Reduces O&amp;M Costs for the City of Peterborough WWTP</b>
	<b>Presenter Names:</b>	Lauren Takitch
	<b>Presenter Company:</b>	Entex Enterprises
	<b>Presentation Abstract:</b>	In the fall of 2021 the existing MBBR system at the City of Peterborough Wastewater Treatment Plant was replaced with Entex's WavTex fixed-media system to eliminate O&M issues including media breakage / washout as well as difficulty maintaining the media retention cages and fine bubble diffusers. Following start up, a nine month process verification period was conducted to validate the performance of the WavTex system at the Full rated capacity during the cold weather, high flow spring, and low limit summer cycles. this presentation will detail the WavTex selection process, results from the process verification period, as well as discuss the recent performance lessons learned.
	<b>Presenter Bio:</b>	Lauren Takitch is an Engineering Manager providing Entex Technologies with Project Engineering and Management since 2019. She has a BS in Chemical Engineering and a minor in Environmental Engineering from Penn State University
	<b>3:10-3:20pm</b>	
<b>#7</b>	<b>3:20-4:20pm</b>	<b>Ground Penetrating Radar for Pipe Inspection, Locating, Investigations, Damage Mitigation, and More</b>
	<b>Presenter Names:</b>	Mark Johnson
	<b>Presenter Company:</b>	GPRS, Inc.
	<b>Presentation Abstract:</b>	Finding your wastewater infrastructure once it leaves the confines of your pump stations and plants is difficult. Modifications made long ago, things move around, utilities are installed, and a myriad of other changes on site can occur between official, as-built jobs. The struggle to find your assets, find damage that has been done to them, find vaults and maintenance holes, and locate them with enough accuracy to dig around sometimes dangerous utility conflicts is a constant struggle. This presentation will discuss new technology for finding, mapping, locating, and inspecting your wastewater infrastructure. Utilizing Ground Penetrating Radar reduces risk and cost to our critical infrastructure, promotes a safe work environment for operators and contractors, and provides non-destructive testing of the assets by locating materials such as concrete, plastic, metal, steel, rock, soil, ice, and pavement using internal and external methods.
	<b>Presenter Bio:</b>	Mark Johnson is the Market Manager and Business Development for the Pacific Northwest. He has worked for GPRS for over 11 years on wastewater and other utility locating projects across the country
	<b>4:20-4:30pm</b>	
<b>WEDNESDAY</b>	<b>06/26/2024</b>	
<b>#8</b>	<b>8:00-9:00am</b>	<b>Discovery Clean Water Alliance - Columbia River Outfall and Effluent Pipeline Integrated Project Delivery In A Complex Operational and Construction Environment</b>

<b>KEYNOTE</b>	<b>Presenter Names:</b>	John Peterson and Bob Sanguinetti
	<b>Presenter Company:</b>	Discovery Clean Water Alliance
	<b>Presentation Abstract:</b>	The presentation will provide insights and lessons learned from the effort to plan, design, permit, and construct a new Columbia River outfall for the Salmon Creek Treatment Plant in Vancouver, WA. The \$37 million project installed 7300 feet of 48-inch pipe terminating with a new diffuser system in the Columbia River, while connecting to and maintaining flow from an operating facility. Challenges for the project include navigating a complex environmental permitting process during the global pandemic, engineering considerations for managing air and flow in the pipeline over a wide range of operational conditions and utilizing several specialized construction techniques and technologies.
	<b>Presenter Bio:</b>	Mr. Peterson holds a bachelor's degree in Civil Engineering and a master's degree in Environmental Engineering. He is a licensed professional engineer in Oregon and Washington. Mr. Peterson is an accomplished wastewater project and program manager. During his private sector career, he delivered a variety of wastewater treatment projects for clients throughout the Pacific Northwest. Mr. Peterson has worked for the Clark Regional Wastewater District since 2002, initially as an engineer delivering an \$80 million treatment system expansion project while building regional consensus for the program. Mr. Peterson then became the General Manager of the District in 2008. During his time as General Manager, Mr. Peterson has moved the District forward to become a leading utility in the state, implementing next generation programs based on the Effective Utility Management framework. Recent District successes include transferring the City of Ridgefield wastewater collection system to the District in 2014; leading the formation of a regional wastewater partnership - the Discovery Clean Water Alliance - in 2015; building the regional Discovery Corridor Wastewater Transmission System in 2016; transferring Ridgefield wastewater treatment operations to the District in 2018; and transferring the Salmon Creek Wastewater Treatment Plant operations to the District in 2022.
	<b>Presenter Bio:</b>	Bob Sanguinetti holds a bachelor's degree in Construction from Arizona State University. Since September 2019, he has worked as the Construction Program Manager for the Clark Regional Wastewater District. Prior to coming to the District, Mr. Sanguinetti worked in the private sector for over 30 years for multiple general contractors across the western and mid-western United States, estimating and managing wastewater and water treatment facility upgrades up to \$85 million in value. During his time at the District, Bob has grown the Construction Management program from utilizing consultant support for many of the larger projects to managing all projects entirely by District staff. Mr. Sanguinetti works closely with contractors, District engineering staff, and engineering consultants to manage and deliver the District construction program successfully. Bob's unique perspective as a former contractor serves useful in overseeing all District projects—from small sewer line repairs to multi-million-dollar treatment plant expansion projects.
	<b>9:00-9:10am</b>	
<b>#9</b>	<b>9:10-10:10am</b>	<b>Environmental Engineering in Action in the WRRF</b>
	<b>Presenter Names:</b>	Chris Maher
	<b>Presenter Company:</b>	Clean Water Services
	<b>Presentation Abstract:</b>	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.
	<b>Presenter Bio:</b>	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.
	<b>10:10-10:20am</b>	
<b>#10</b>	<b>10:20-11:20am</b>	<b>Environmental Engineering in Action in the WRRF</b>
	<b>Presenter Names:</b>	Chris Maher
	<b>Presenter Company:</b>	Clean Water Services

	<b>Presentation Abstract:</b>	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.
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	<b>11:20-11:30am</b>	
<b>#11</b>	<b>11:30-12:30pm</b>	<b>The Changing World of Pretreatment</b>
	<b>Presenter Names:</b>	Rick Allen
	<b>Presenter Company:</b>	BioLynceus
	<b>Presentation Abstract:</b>	In The Changing World of Pretreatment, professionals will learn the importance of managing and utilizing pre-treatment to enhance collection system and plant operations. Attendees will look at the types of programs that will be of benefit to their system. Program discussion of FOG (Fats, Oils, and Grease), H2S mitigation and other contaminants, including sanitary wipes and industrial users (IU or SIU) are examined. During this presentation the potential effects of Cannabis growers and manufacturers on your system will be discussed. Specific protocols and programs are covered that may be utilized to help improve FOG, Odors, Corrosion, and the damaging impact of contaminants. Pretreatment Coordinators, Collection system and wastewater system professionals will benefit by learning key strategies to improve pretreatment and collection system management. Programs and protocols along with emerging issues are included in the discussion of how systems around the country are improving their wastewater programs by incorporating pre-treatment and collection system management strategies.
	<b>Presenter Bio:</b>	Rick Allen is a visionary entrepreneur, environmentalist, and the driving force behind the groundbreaking company BioLynceus®. With an unwavering commitment to sustainability and a passion for revolutionizing the way we interact with our environment; Rick has dedicated his nearly 30-year career to creating innovative solutions that benefit both people and the planet. In 1994, Rick founded BioLynceus®, a company dedicated to harnessing the power of nature to solve some of the world's most pressing environmental challenges. Under his leadership, BioLynceus® has pioneered groundbreaking technologies that leverage the incredible potential of beneficial microorganisms. BioLynceus® has become a leader in contributing to the restoration of ecosystems, improving soil health, and promoting sustainable agriculture.
	<b>12:30-1:30pm</b>	LUNCH BREAK
<b>#12</b>	<b>1:30-2:30pm</b>	<b>Oregon Association of Clean Water Agencies Model FOG Ordinance</b>
	<b>Presenter Names:</b>	Jill Hoyenga
	<b>Presenter Company:</b>	Regulatory Compliance Manager
	<b>Presentation Abstract:</b>	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
	<b>Presenter Bio:</b>	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.
	<b>2:30-2:40pm</b>	
<b>#13</b>	<b>2:40-3:40 pm</b>	<b>Collaborative FOG Enforcement</b>
	<b>Presenter Names:</b>	Jill Hoyenga
	<b>Presenter Company:</b>	Regulatory Compliance Manager

	<b>Presentation Abstract:</b>	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.
	<b>Presenter Bio:</b>	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.
	<b>3:40-3:50pm</b>	
<b>#14</b>	<b>3:50-4:50pm</b>	<b>Mobile Food Units – Mouthwatering or Miasma- Jill Hoyenga</b>
	<b>Presenter Names:</b>	Jill Hoyenga
	<b>Presenter Company:</b>	Regulatory Compliance Manager
	<b>Presentation Abstract:</b>	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.
	<b>Presenter Bio:</b>	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.
	<b>4:50-5:00pm</b>	
<b>THURSDAY</b>	<b>June 27</b>	
<b>#15</b>	<b>8:00-9:00am</b>	<b>All Eyes on You: How to Get Comfortable with Attention</b>
<b>KEYNOTE</b>		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.
	<b>9:00-9:10am</b>	
<b>#16</b>	<b>9:10-10:10am</b>	<b>Surface Water Management at WES-Preventing Non-Point Source Wastewater Pollution</b>
	<b>Presenter Names:</b>	Gail Shalum
	<b>Presenter Company:</b>	Clackamas Water Environment Services; Natural Resources Scientist

	<b>Presentation Abstract:</b>	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.
	<b>Presenter Bio:</b>	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.
	<b>10:10-10:20am</b>	
<b>#17</b>	<b>10:20-11:20am</b>	<b>Laboratory Testing for Wastewater Treatment</b>
	<b>Presenter Names:</b>	Patrick Leach, Laboratory Analyst , Clackamas Water Environment Services, Water Quality Laboratory
	<b>Presenter Company:</b>	WES Analytical Lab
	<b>Presentation Abstract:</b>	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.
	<b>Presenter Bio:</b>	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.
	<b>11:20-11:30am</b>	
<b>#18</b>	<b>11:30-12:30pm</b>	<b>Nailing the Job Interview for Wastewater Operation</b>
	<b>Presenter Names:</b>	Marion Barnes
	<b>Presenter Company:</b>	City of Eugene Public Works, Oregon
	<b>Presentation Abstract:</b>	Whether you've been in the water industry for years or are just getting started, job interviews can be nerve-wracking. You want to present yourself well so you land that job, but that means answering a lot of questions and sometimes "extroverting" when that might not be your comfort zone. In this session we will talk about how to be more comfortable in job interview situations, how to respond to tricky questions, and how to create a resume that shines.
	<b>Presenter Bio:</b>	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.
	<b>12:30-1:30pm</b>	LUNCH BREAK
<b>#19</b>	<b>1:30-2:30pm</b>	<b>Lessons Learned From A Decade Of Phosphorus Recovery At Clean Water Services' WRRF</b>
	<b>Presenter Names:</b>	Brett Laney
	<b>Presenter Company:</b>	Clean Water Services
	<b>Presentation Abstract:</b>	This session will cover initial assumptions about Ostara's technology vs 10 years of operating performance, the unexpected challenges, and how we've addressed them.
	<b>Presenter Bio:</b>	Brett Laney has performed Operations Analysis for Clean Water Services for over 21 years.
	<b>2:30-2:40pm</b>	
<b>#20</b>	<b>2:40-3:40 pm</b>	<b>Phosphorus Flux Dynamics in the Forest Grove Natural Wastewater Treatment System</b>
	<b>Presenter Names:</b>	Colin Wilson Root, M.S., E.I.T. AND Leila Barker, M.S., P.E.
	<b>Presenter Company:</b>	Clean Water Services, OR

	<b>Presentation Abstract:</b>	The Forest Grove Water Resource Recovery Facility (WRRF) uses the 90-acre Fernhill Natural Treatment System (NTS) for temperature reduction and dissolved oxygen amelioration of its secondary effluent polishing prior to discharge. As of 2022 the NTS effluent also serves as the dry-season point of compliance for additional water quality parameters, including total phosphorus (TP). Since the NTS began operation in 2017, phosphorus (P) concentrations in NTS effluent have been consistently lower than concentrations in WRRF effluent discharged to the system. However, because the NTS was not constructed with P removal as a treatment goal, Clean Water Services (CWS) is invested in understanding and characterizing the mechanisms of P removal in the wetlands to ensure compliance with current and future permit limits. This presentation will detail the approach to sampling and testing that CWS has undertaken to characterize P dynamics in the soil and water of the NTS, with the aim of understanding potential impacts of operational interruptions and P loading on NTS effluent. To investigate the potential for compliance challenges resulting from extended flow interruptions, benchtop microcosms containing surface soils were subjected to controlled drying and rewetting. Increases of up to 0.1 – 0.5 ppm TP were observed as a result of soil-associated P re-dissolving into the water column over a 24 hour timespan. These modest quantities were not sufficient to be considered alarming, but were significant enough to be noteworthy for future operations.
	<b>Presenter Bio:</b>	Colin Root is an environmental engineer and molecular biologist, with a passion for exploring innovative biological solutions to pollution problems. He earned his bachelor's degree in Biology from Willamette University in 2011, pursued additional engineering coursework at Portland Community college, and completed a master's degree in Environmental & Water Engineering from Colorado School of Mines in 2021. Along the way, he has worked in a variety of research roles across academia, industry, and government. Now he applies his talents to wastewater treatment process improvement at Clean Water Services in Washington County, where his studies on phosphorus dynamics in aeration basins and engineered wetlands have real-world impacts on local watersheds and public health. When he isn't performing bench tests and wrangling spreadsheets, he can be found training ski instructors on the snowy slopes of Mt. Hood, rock climbing, or hiking with his dog.
	<b>3:40-3:50pm</b>	
<b>#21</b>	<b>3:50-4:50pm</b>	<b>Municipal Master Planning (Capital Projects and or/ Wastewater &amp; Storm Water System</b>
	<b>Presenter Names:</b>	Mouhamad Zaher, Public Works Director
	<b>Presenter Company:</b>	St. Helens
	<b>Presentation Abstract:</b>	The city of St. Helens is taking a progressive approach to there aging infrastructure. Capital Projects and the importance of rebuilding water and wastewater systems is paramount. The presentation will focus on the challenges and success of prioritizing new storm and wastewater systems.
	<b>Presenter Bio:</b>	Mr. Zaher graduated from Portland State University with a B.S. in Civil Engineering and an M.S. in Engineering & Technology Management. In addition, he is a Clackamas Community College Alumni. "This is where I started my student journey". With over 13 years of combined experience from the private and public sectors, Mr. Zaher has an in-depth experience overseeing all phases of multi-million-dollar projects, including infrastructure, capital projects, utilities and power infrastructure, semiconductor, civil and construction engineering, and enterprise advanced technology. Other highlights of his work include public works, project management, semiconductors, transit systems, transportation engineering, and Solar/Power manufacturing projects. Mouhamad holds several professional licenses and certificates such as CPWP-M (Certified Public Works Professional Executive), he is one of only 90 professionals in the United States who holds this certificate.
	<b>4:50-5:00pm</b>	