

Schedule subject to change pending OESAC approval

Water Environment School 2020

- Water Resource Recovery
- Operations & Maintenance
- Collection Systems
- Asset Management

MARCH 24-26

- Safety
- Stormwater
- Technology

- Wastewater Pretreatment
- Vendor Display
- Basics & Beyond
- Activated Sludge

Celebrating 44 years of Education



Lodging Information

This list provides you with a few motel choices. The college is located only 5 minutes south off I-205 (Exit #10), which makes access from this freeway quick and easy. When making your reservation, be sure to mention "Clackamas Community College Water Environment School" to ensure that you are quoted the rates listed here.

<u>Rivershore</u>	<u>Sunnyside Inn Motel</u>	<u>Holiday Inn</u>
1900 Clackamette Drive Oregon City, OR 97045 1 Queen - \$134.99* 2 Queens - \$143.00* Phone: (503) 655-7141 or (800) 443-7777 *Add 11% city and county tax.	12855 S.E. 97th (I-205/Sunnyside Exit 14) Clackamas, OR 97015 1 Queen: \$75.46* Phone: (503) 652-1500 or (800) 547-8400 *Including tax	75 82nd Drive (by Safeway Store) Gladstone, Oregon 97027 (I-205 @ Gladstone Exit # 11) (rate subject to change) 1 King - \$124.93* 2 Queen - 131.50* Phone: (503) 722-7777 or (877)-558-7710 * Add a 7% county tax.

2020 Manufacturer Representative's Display



This year's vendor's display will be on

Wednesday, March 25, 2020
in Randall Gymnasium.

Please plan to visit the exhibitor's display on Wednesday, March 25 to gain 0.1 CEUs!

Water Environment School 2020

Schedule & Descriptions

Operations & Maintenance ~ McLoughlin Auditorium					
TUESDAY 3/24/20		WEDNESDAY 3/25/20		THURSDAY 3/26/20	
8:00 AM	Opening Ceremony RANDALL GYMNASIUM	8 8:00AM	Reduce Operating Costs with Energy Efficient Improvements <i>Lisa Green, Energy 350</i>	15 8:00AM	Tri-City Solids Handling Improvements Project Update <i>Jeff Stallard, Water Environment Services</i>
1 8:15 AM	KEYNOTE RANDALL GYMNASIUM	9 9:05AM	<i>Manufacturer Representative's Display</i> <i>Randall Gymnasium</i>	16 9:05AM	Variable Speed Wastewater Pumping <i>Alden Meade, XYLEM</i>
2 9:30 AM	Bio-Augmentation vs. Bio-Stimulation: What, When, Why, and How? <i>Rick Allen, BioLynceus</i>	10 10:20AM	Developing Operator Decision Making Skills <i>Mark Walker, Waterdude Solutions</i>	17 10:20AM	An Examination of Plastic Materials in Wastewater Applications Including Material Selection and Reverse Engineering Techniques <i>Leon Telesmanich, Plastic Machining Co.</i>
3 10:35AM	Emerging Trends for External Carbon for Wastewater <i>Rick Allen, BioLynceus</i>	11 11:25AM	PLC Basics, from an Operator's Point of View <i>Skye Franyutti & Patrick Clasen, Water Environment Services</i>	18 11:25AM	Operational Considerations for Disinfection Byproduct Control <i>Rachel Golda, Clean Water Services</i>
4 12:35PM	Mitigating Contaminants <i>Rick Allen, BioLynceus</i>	12 1:25PM	Odor and Corrosion Control in the Collection System <i>Methy Murphy, Evoqua Water Technologies</i>	19 1:25PM	Wastewater MBR Basics & Tour (1 of 3)—Classroom <i>Blake Raines, Water Environment Services</i>
5 1:40PM	Mitigating Contaminants <i>Continued</i>	13 2:30PM	Locating for Sewers <i>Brian Moss, RJM Equipment</i>	20 2:30PM	Wastewater MBR Basics & Tour (2 of 3)—Tour—Tri-Cities
6 2:55PM	Secondary Clarifier Failure <i>Bill Heilman & Dan, Water Environment Services</i>	14 4:00PM	The Great Stink <i>Film</i>	21 3:45PM	Wastewater MBR Basics & Tour (3 of 3)—Tour—Tri-Cities
7 4:00PM	No Session				

Operations Session Description		
TUESDAY - MARCH 24, 2020		
	7:00-8:00AM	REGISTRATION/COFFEE AND DONUTS -- Fireside Lounge
	8:00-8:15AM	Opening announcements
#1	8:15-9:15AM	Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> Poly and Per Fluoro Alkyl Substances (PFAS) are used for foams, firefighting, and water/stain repellants. These compounds (which typically end up in biosolids) are ubiquitous and found to be persistent, bioaccumulative, and toxic. ORDEQ will present the issues associated with these compounds and the steps taken to control them.
#2	9:30-10:30AM	Bio-Augmentation vs. Bio-Stimulation: What, When, Why, and How? <i>Rick Allen, BioLynceus</i> Mr. Allen will discuss the importance of microbiology in your system and how the use of augmentation or stimulation can enhance your existing operations. You will also receive a high level description of the difference between programs and how you can utilize these programs to enhance your operations, or to re-start a plant.

#3	10:35-11:35AM	Emerging Trends for External Carbon for Wastewater <i>Rick Allen, BioLyncens</i> Emerging Trends and External Carbon for Wastewater contains an in-depth review of external carbon in the wastewater treatment processes. During this presentation, Mr. Allen will discuss many of the reasons external carbon may be used to optimize wastewater treatment processes.
#4	12:35-1:35PM	Mitigating Contaminants <i>Rick Allen, BioLyncens</i> With existing mandates on managing nutrient loading and contaminants, there are additional regulatory (unfunded) regulatory concerns coming. In Mitigating Contaminants, attendees will explore some of the reasons why these regulatory concerns are being created and some additional rules that are coming down the pipe.
#5	1:40-2:40PM	Mitigating Contaminants <i>continued</i>
#6	2:55-3:55PM	Secondary Clarifier Failure <i>Bill Heilman & Dan, Water Environment Services</i> We will discuss the issues associated with a clarifier failure. The warnings signs that we missed, all the challenges we encountered during and after the rebuild, what the determined cause was and lessons learned.
#7	4:00-5:00PM	No Session
WEDNESDAY--MARCH 25, 2020		
#8	8:00-9:00AM	Reduce Operating Costs with Energy Efficient Improvements <i>Lisa Green, Energy 350</i> This presentation will highlight the biggest energy users common in wastewater treatment plants and present low-cost ideas to help reduce operating costs.
#9	9:05-10:05AM	Vendor's Display
#10	10:20-11:20AM	Developing Operator Decision Making Skills <i>Mark Walker, Waterdude Solutions</i> In order to protect the environment and work safely under all conditions requires a measured approach to decision making. This training will highlight various decision-making concepts and how they apply to the operation and maintenance of wastewater systems. Attendees will be introduced to the OODA decision making method to accelerate decision making, particularly in emergency situations.
#11	11:25-12:25PM	PLC Basics, from an Operator's Point of View <i>Skye Franyutti & Patrick Clasen, Water Environment Services</i> 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.
#12	1:25-2:25PM	Odor and Corrosion Control in the Collection System <i>Methy Murphy, Evoqua Water Technologies</i> The presentation will review the sources of odor in the collection system and the damage the presence of these odors can have on the collection system. Then, the presentation will go over the array of odor and corrosion control solutions (both liquid and vapor phase technologies) that are available – how they work and the best application for that particular technology.
#13	2:30-3:30PM	Locating for Sewers <i>Brian Moss, RJM Equipment</i> Accurately locating sewer pipes with the use of sondes, cameras, tracer wires, and locatable rodders with electronic radio frequency locators. Locating non-metallic force mains, storm drains and sanitary pipelines with GPR and acoustic pipe locators.

#14	4:00-5:00PM	The Great Stink <i>Film</i> The Great Stink was an event in central London in July and August 1858 during which the hot weather exacerbated the smell of untreated human waste and industrial effluent that was present on the banks of the River Thames. This event led to a new modern way of conveying and treating wastewater.
THURSDAY-MARCH 26, 2020		
#15	8:00-9:00AM	Tri-City Solids Handling Improvements Project Update <i>Jeff Stallard, Water Environment Services</i> The presentation will give an overview of the Tri-City Solids Handling Improvements project which is currently under construction. The project includes thickened sludge blending, a 1.3 MG anaerobic digester, digested sludge storage, dewatering, dewatered sludge storage, upgrades to the existing digesters and a biogas utilization process including gas storage, cleaning and cogeneration. Discussion of the design phase of the project will include an emphasis on reliability and redundancy highlighting how engineers and operations and maintenance staff view redundancy and how we worked to meet the needs of team members with differing perspectives. The presentation will also provide an overview of the first 8 months of construction and a look forward to training and start up. Construction is expected to be complete in early 2021.
#16	9:05-10:05AM	Variable Speed Wastewater Pumping <i>Alden Meade, XYLEM</i> This presentation covers the difficulties of wastewater pumping and the problems that can arise when using VFD speed control. We will discuss how these issues can be addressed and how a VFD will ultimately help save on energy usage and callouts when paired with proper pump selection and station design & control.
#17	10:20-11:20AM	An Examination of Plastic Materials in Wastewater Applications Including Material Selection and Reverse Engineering Techniques <i>Leon Telesmanich, Plastic Machining Co.</i> The course will examine the use of plastics in wastewater applications. Included will be the selection of materials to address application specific requirements, including mechanical, thermal, electrical, chemical, machining and fabrication considerations.
#18	11:25-12:25PM	Operational Considerations for Disinfection Byproduct Control <i>Rachel Golda, Clean Water Services</i> Disinfection byproducts (DBPs) are compounds of concern produced in wastewater systems as a byproduct of chlorination. In anticipation of future limits, Clean Water Services is implementing DBP control methods at two of its treatment plants. This talk focuses on how DBP control must be balanced with other operational parameters such as ammonia concentration, reuse water use, and disinfection in order to achieve both permit compliance and reduce health risks from DBPs.
#19	1:25-2:25PM	Wastewater MBR Basics & Tour (1 of 3)—Classroom <i>Blake Raines, Water Environment Services</i> 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
#20	2:30-3:30PM	Wastewater MBR Basics & Tour (2 of 3)--Tour—Tri-Cities
#21	3:45-4:45PM	Wastewater MBR Basics & Tour (3 of 3)--Tour—Tri-Cities

Wastewater Pretreatment ~ Pauling Center P101

TUESDAY 3/24/20		WEDNESDAY 3/25/20		THURSDAY 3/26/20	
8:00 AM	Opening Ceremony RANDALL GYMNASIUM	8 8:00AM	Sample Collection and Sampling Plans (1 of 2) (Joint Session with Basics & Beyond: Pauling 131) <i>Erika Schwender, Executive Director, Professional Training Association</i>	15 8:00AM	Permitting Craft Fermented Beverage Industry <i>Brittany Grimes & Jess Aloisio, City of Portland Bureau of Environmental Services</i>
1 8:15 AM	KEYNOTE Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> RANDALL GYMNASIUM	9 9:05AM	Sample Collection and Sampling Plans (2 of 2) (Joint Session with Basics & Beyond: Pauling 131)	16 9:05AM	Working Towards Compliance: Permitting Breweries While Establishing a Pretreatment Program <i>Stephanie Kerns, City of Newport</i>
2 9:30 AM	A History of Domestic and Industrial Waste Treatment <i>Andria Swann, City of Sumner, WA</i>	10 10:20AM	<i>Manufacturer Representative's Display</i> <i>Randall Gymnasium</i>	17 10:20AM	Winning the War Against Wipes (Joint Session with Collections: Gregory Forum A) <i>Dave Barkey, JWC Environmental, Inc.</i>
3 10:35AM	Building a Business Case for FOG Development <i>Clayton Brown, Western States Alliance</i>	11 11:25AM	Septic and FOG Waste Processing Technology <i>Stanley Janicki, Sedron Technologies</i>	18 11:25AM	Cannabis: Pesticides and Other Considerations <i>Michael Odenthal, Oregon Department of Agriculture</i>
4 12:35PM	Industrial User Survey 101 <i>Andria Swann, City of Sumner, WA & Brittany Grimes, City of Portland</i>	12 1:25PM	Pollution Prevention Outreach <i>John Gross, Goldstreet Designs</i>	19 1:25PM	Industrial Pretreatment Devices 101 <i>Brittany Grimes, City of Portland</i>
5 1:40PM	Working Together <i>Erik Grimstad & Matt Young, City of McMinnville</i>	13 2:30PM	Communicate, Collaborate (and use technology) in your FOG Program <i>Lauren Huey, Swift Comply</i>	20 2:30PM	Grease Interceptor Sizing Using Grease Monkey <i>Luke Ericson, Stone-Drew/Ashe & Jones</i>
6 2:55PM	The Changing World of Pretreatment (1 of 2) <i>Rick Allen, BioLyncens</i>	14 4:00	Effluent Toxics Characterization Monitoring Guidance <i>Aliana Britson & Sarah Rockwell, Oregon DEQ</i>	21 3:45PM	High Strength Waste Surcharge Program <i>Washington Department of Ecology</i>
7 4:00PM	The Changing World of Pretreatment (2 of 2)				

Wastewater Pretreatment Session Descriptions

TUESDAY - MARCH 24, 2020

	7:00-8:00AM	REGISTRATION/COFFEE AND DONUTS -- Fireside Lounge
	8:00-8:15AM	Opening announcements
#1	8:15-9:15AM	Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> Poly and Per Fluoro Alkyl Substances (PFAS) are used for foams, firefighting, and water/stain repellants. These compounds (which typically end up in biosolids) are ubiquitous and found to be persistent, bioaccumulative, and toxic. ORDEQ will present the issues associated with these compounds and the steps taken to control them.
#2	9:30-10:30AM	A History of Domestic and Industrial Waste Treatment <i>Andria Swann, City of Sumner, WA</i> This discussion will outline the progression of wastewater and industrial waste treatment within the US and worldwide.

#3	10:35-11:35AM	Building a Business Case for FOG Development <i>Clayton Brown, Western States Alliance</i> This presentation gives municipal wastewater staff an overview of building a business case for developing and implementing an effective Fats, Oils & Grease (FOG) Abatement Program. We will discuss the data needs, how to gather the data, data management and presentation. We will discuss the existing cost to the municipality of FOG discharges to the collection and treatment systems, and which costs will decrease upon implementation of a FOG program. Examples will be presented for municipal costs to implement a FOG program, and give examples of the cost-benefit calculation process, and how to present the information to municipal decision makers.
#4	12:35-1:35PM	Industrial User Survey 101 <i>Andria Swann, City of Sumner, WA & Brittany Grimes, City of Portland</i> A comprehensive discussion of how to prepare and implement a successful Industrial User Survey. Industrial User Surveys are required to ensure that the POTW knows all users discharging into the collection system to ensure all potential Significant industrial Users are identified.
#5	1:40-2:40PM	Working Together <i>Erik Grimstad & Matt Young, City of McMinnville</i> The City of McMinnville Wastewater Services works diligently to build and maintain clear communication between the operations, collections, and pretreatment groups. We work together to protect the collections system and treatment plant to ensure we consistently meet strict NPDES permit limits. Topics include: remote monitoring, reducing FOG in the collections system, and working with industrial users during the low flow months of summer.
#6	2:55-3:55PM	The Changing World of Pretreatment (1 of 2) <i>Rick Allen, BioLynceus</i> In The Changing World of Pretreatment, professionals will learn the importance of managing and utilizing pre-treatment to enhance collection system and plant operations. Program discussion of FOG (Fats, Oils, and Grease), H2S Mitigation and other contaminants
#7	4:00-5:00PM	The Changing World of Pretreatment (2 of 2)
WEDNESDAY--MARCH 25, 2020		
#8	8:00-9:00AM	Sample Collection and Sampling Plans (1 of 2) (Joint Session with Basics & Beyond: Pauling 131) <i>Erika Schwender, Executive Director, Professional Training Association</i> Analytical data is only defensible if proper sample collection, preservation and storage procedures are applied. Learn why it is important to develop and follow a sampling plan, and how to properly sample for a multitude of parameters.
#9	9:05-10:05AM	Sample Collection and Sampling Plans (2 of 2) (Joint Session with Basics & Beyond: Pauling 131)
#10	10:20-11:20AM	Vendor's Display
#11	11:25-12:25PM	Septic and FOG Waste Processing Technology <i>Stanley Janicki, Sedron Technologies</i> A review of the innovative technology that is on its way to revolutionizing the waste processing industry because of its unique and efficient way of combining the following three industry standard processes: solid fuel combustion, steam power, water treatment. Learn how this system is changing the way FOG waste and Septic waste is being treated.

#12	1:25-2:25PM	Pollution Prevention Outreach <i>John Gross, Goldstreet Designs</i> Mr. Gross will take a look at communication habits of millennials and dive deep into why this matters to sewer professionals. He will provide tips to reach this audience. He will also talk about how to create and distribute video content about pollution prevention related to wastewater on a shoestring budget.
#13	2:30-3:30PM	Communicate, Collaborate (and use technology) in your FOG Program <i>Lauren Huey, Swift Comply</i> There are excellent software tools for FOG programs, and they should be used exactly that way - as tools to help you run your program most effectively. SwiftComply's platform encourages collaboration and communication between regulators, food service establishments, and grease pumpers. Learn how you can incorporate these techniques into your program and hear case studies of others on this path.
#14	4:00-5:00PM	Effluent Toxics Characterization Monitoring Guidance <i>Aliana Britson & Sarah Rockwell, Oregon DEQ</i> Ms. Britson present an overview of best practices for industrial wastewater sample collection and data submission for Effluent Toxics Characterization Monitoring.
THURSDAY-MARCH 26, 2020		
#15	8:00-9:00AM	Permitting Craft Fermented Beverage Industry <i>Brittany Grimes & Jess Aloisio, City of Portland Bureau of Environmental Services</i> The City of Portland will present on implementing an alternative discharge control mechanism for the craft fermented beverage industry. The alternative discharge control mechanism is BMP based. The craft fermented beverage industry includes breweries, distilleries, wineries and kombucharies.
#16	9:05-10:05AM	Working Towards Compliance: Permitting Breweries While Establishing a Pretreatment Program <i>Stephanie Kerns, City of Newport</i> This presentation will provide insight on the process the City of Newport has been implementing to get a single, large Industrial User, which is a brewery, into compliance while simultaneously starting a new Pretreatment Program. This is a look into the challenges and successes of the new pretreatment program and the overall goals that they have for the program and Users in town.
#17	10:20-11:20AM	Winning the War Against Wipes (Joint Session with Collections: Gregory Forum A) <i>Dave Barkey, JWC Environmental, Inc.</i> The composition of modern sewage is vastly different than influent from just a few decades ago and current pump stations' equipment was never designed to handle it. This evolution is leading to unplanned maintenance, exposing workers to safety risks, equipment damage and even spills. One of the biggest culprits is the increased use of "flushable" wipes and other disposable, non-dispersible fabrics that end up in the waste stream. The presentation will first investigate the state of the wipes market today and current developments in the industry. We will then look at the effectiveness of PSA and legal actions at the municipal, state and federal levels to combat the wipes menace. Finally, we will look at technical options for pumps and grinders to pre-condition solids in wastewater collection systems. The overall goal is to provide information on the various options available to provide effective solutions to prevent pump damage, eliminate worker safety risks, and reduce the time and energy costs associated with pump clogging.
#18	11:25-12:25PM	Cannabis: Pesticides and Other Considerations <i>Michael Odenthal, Oregon Department of Agriculture</i> Mr. Odenthal will talk about how pesticide regulation and investigations are done regarding wastewater in Oregon and share a few example cases.

#19	1:25-2:25PM	Industrial Pretreatment Devices 101 <i>Brittany Grimes, City of Portland</i> This presentation will cover biological, chemical and physical industrial pretreatment and associated devices.
#20	2:30-3:30PM	Grease Interceptor Sizing Using Grease Monkey <i>Luke Ericson, Stone-Dren/ Ashe & Jones</i> A correctly sized grease interceptor reduces maintenance costs for restaurants and prevents the chance of a messy and costly overflow. When it comes to sizing grease interceptors, many plumbing codes focus on either flow rate or liquid volume. Schier considers both flow rate and grease production to determine the capacity of the interceptor and its recommended pump out frequency. Grease Monkey guides you through the important aspects of sizing and produces a plans-ready sizing report using Grease Production Sizing. Once you receive your recommended interceptor, you can opt-in to our complimentary Pre-approval Service in which our sizing experts double-check your work and confirm local code approval for your grease interceptor installation.
#21	3:45-4:45PM	High Strength Waste Surcharge Program <i>Washington Department of Ecology</i> Presenter will discuss how wastewater treatment plants can manage high strength waste loading into plant and share opportunities for pretreatment program updates regarding limits.

Collection Systems ~ Gregory Forum A

TUESDAY 3/24/20		WEDNESDAY 3/25/20		THURSDAY 3/26/20	
8:00 AM	Opening Ceremony RANDALL GYMNASIUM	8 8:00AM	Unlocked Potential using Wastewater Monitoring and Modeling <i>Jennah Maier, City of Eugene</i>	15 8:00AM	Yard Pipe - Not So Straight Forward <i>Christina Totland, Contech Engineered Solutions</i>
1 8:15 AM	KEYNOTE Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> RANDALL GYMNASIUM	9 9:05AM	Wastewater System Rehab: Postponing the Apocalypse <i>Patrick M Cox II, P.E., City of Eugene</i>	16 9:05AM	Sewer Main Aeration System <i>Jim White, In-line Aeration/Oxygenation – Groundwater and Wastewater Treatment</i>
2 9:30 AM	DIY Injection Grouting For Municipal Manholes <i>Dean LeBret, Jr., City of Sweet Home, OR</i>	10 10:20AM	Anatomy of A Successful Sanitary Sewer Lateral Rehabilitation Program <i>Sue Nelson, P.E. & Sharon Darroux, City of St. Helens, OR</i>	17 10:20AM	Winning the War Against Wipes <i>Dave Barkey, JWC Environmental, Inc.</i>
3 10:35AM	The Cost of Being a Good Neighbor <i>Sharon Paterson, Anne Water Technologies; Scott Conden, Jacobs Inc.; Dennis Froeblich, Pima County, AZ</i>	11 11:25AM	Access Rights for Water and Wastewater Utilities <i>Sarah Liljefelt, Schroeder Law Office</i>	18 11:25AM	Sewer Infrastructure Condition Assessment and Prioritization <i>Shae Talley, J-U-B Engineers</i>
4 12:35PM	Pipe Encasing and Wall Penetrations <i>Steve Causseaux, Robert Velasquez, and/or John Stephenson, CIMCO</i>	12 1:25PM	<i>Manufacturer Representative's Display</i> <i>Randall Gymnasium</i>	19 1:25PM	A Comprehensive Planning Approach to Cost Effectiveness Analysis (Conveyance, Treatment, & I/I Reduction) <i>Jessica Rinner, Clackamas County WES; Shad Roundy, Jacobs</i>
5 1:40PM	Storm Collection Backflow Prevention by Elastomeric Check Valve Technologies <i>Matthew Davidson, Antec Corporation</i>	13 2:30PM	Risk Assessment of Underground Vaults - Protecting Workers from Common Hazards <i>Frank Ray, EJ</i>	20 2:30PM	Modern Lift Station Design <i>Alden Meade, Xylem, Inc.</i>
6 2:55PM	Holistic Design Approach for Seattle Public Utilities' Tunnel Effluent Pump Station <i>Eric Bergstrom, HDR Engineering</i>	14 4:00PM	Odor Control in Collection Systems <i>John Sanyer, Bio-Air Solutions</i>	21 3:45PM	Nozzle Selection For Every Job (Joint session with Stormwater) <i>Eric Lundy, Owen Equipment</i>
7 4:00PM	Practical Applications for Artificial Intelligence in Sewer Asset Management <i>Daniel Buonadonna, PE, Jacobs</i>				

Collections Session Descriptions

TUESDAY - MARCH 24, 2020

	7:00-8:00AM	REGISTRATION/COFFEE AND DONUTS -- Fireside Lounge
	8:00-8:15AM	Opening announcements
#1	8:15-9:15AM	Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> Poly and Per Fluoro Alkyl Substances (PFAS) are used for foams, firefighting, and water/stain repellants. These compounds (which typically end up in biosolids) are ubiquitous and found to be persistent, bioaccumulative, and toxic. ORDEQ will present the issues associated with these compounds and the steps taken to control them.
#2	9:30-10:30AM	DIY Injection Grouting For Municipal Manholes <i>Dean LeBret, Jr., City of Sweet Home, OR</i> Innovation is required to bridge the gap between crumbling infrastructure and the maintenance teams that keep it functioning. The City of Sweet Home, Oregon has a history of high I&I. After four very successful collection system rehabilitation projects reduced peak flows from 22MGD to 12MGD, City crews have now identified leaky manholes as one of the major sources of remaining I&I. The City needed a cost effective way to stop the leaks found in real time that would not involve a large capital outlay. Manhole rehabilitation solutions are expensive and usually involve hiring contractors with

		<p>specialty equipment to repair manholes in batches. Purchasing a grout injector was also expensive and the equipment would be oversized for the City's needs. There was a gap between the solution that was needed and the solutions that were available.</p> <p>Maintenance staff got creative and converted a retired airless paint machine into a high pressure injection grouting machine, thereby producing a medium-scale, self-contained system for repairing leaks immediately upon discovery. The City found its bridge and has now launched an effective manhole stop-leak program at a fraction of the cost of contracting out. Staff will present how the machine was built, totally in house, with only a few new fittings. Staff will also discuss a few application techniques learned, our success with different grout types, and some of the best practices we learned along the way.</p>
#3	10:35-11:35AM	<p>The Cost of Being a Good Neighbor <i>Sharon Paterson, Anue Water Technologies; Scott Cowden, Jacobs Inc.; Dennis Froehlich, Pima County, AZ</i></p> <p>Is there a "rule of thumb" for what a top odor performing utility spends to keep odors under control? How do you measure your utility's performance as a good neighbor? This presentation examines practices and expenditures of five of the top performing utilities in the country who are recognized as good neighbors in their communities. We will talk about how the approaches of the best city programs differ from the rest of the pack. We will also break down the capital spending and operating and maintenance costs of odor prevention and mitigation, as well as how these utilities staff their departments for responding to public observations on odor.</p>
#4	12:35-1:35PM	<p>Pipe Encasing and Wall Penetrations <i>Steve Causseaux, Robert Velasquez, and/or John Stephenson, CIMCO</i></p> <p>This training module offers instruction on the different methods of wall penetration sealing, wall sleeves, and pipe encasing for proper installation and long term performance. Students will learn to properly select the right material, size, and number of wall penetration seals and sleeves for any application, including special sizing considerations for atypical circumstances. Students will also learn about pipe encasing, its purpose, and the different methods to achieve proper pipe encasing for long-lasting and stable performance.</p>
#5	1:40-2:40PM	<p>Storm Collection Backflow Prevention by Elastomeric Check Valve Technologies <i>Matthew Davidson, Antec Corporation</i></p> <p>This technical presentation will chronically detail the history and performance results of 35+ years of both Duckbill and In-Line Elastomeric Check Valve Technologies. Presentation will include Engineering, Adaptation and best practices for long term operation. The PNW has the greatest number of Elastomeric Check valves installed in the world. A detailed comparison between Flap-Gate, Duckbill and Newest Checkmate valves will be the main topics of discussion with example installation results.</p>
#6	2:55-3:55PM	<p>Holistic Design Approach for Seattle Public Utilities' Tunnel Effluent Pump Station <i>Eric Bergstrom, HDR Engineering</i></p> <p>Seattle Public Utilities (SPU) will be constructing a 56 mgd pump station at the end of the 2.7-mile, 18-foot 10-inch-diameter combined sewage storage tunnel as part of the Ship Canal Water Quality Project. The Tunnel Effluent Pump Station (TEPS) will drain the tunnel after flows in the regional wastewater conveyance system have receded following a wet weather event. This project will reduce the frequency of CSO events to less than one CSO event per year at each of the tributary basin combined sewer outfalls, meeting the US Environmental Protection Agency (USEPA) and Washington State Department of Ecology consent decree requirements.</p> <p>Rather than approaching the design of the pump station to first meet 1) HI standards and</p>

		then adapt the design to consider 2) constructability, and finally 3) operations and maintenance (O&M), the design team took a holistic approach that considered all three factors simultaneously. This approach result in a wet well different than a standard HI configuration but a physical model study was used to establish conformity with HI standards.
#7	4:00-5:00PM	Practical Applications for Artificial Intelligence in Sewer Asset Management <i>Daniel Buonadonna, PE, Jacobs</i> Despite rapid advancements in the general fields of artificial intelligence and machine learning (AI/ML), the sewer industry sometimes lags behind others in terms of leveraging the benefits of these technologies. This is often due to the practical difficulties associated with collecting data, or deploying automation, within the turbulent and foul realities of a sanitary sewer pipe. This presentation will discuss potential practical applications of AI/ML to enhance existing maintenance and management practices like: automated sewer CCTV defect coding, optimizing cleaning schedules, and predicting remaining useful life forecasts.
WEDNESDAY--MARCH 25, 2020		
#8	8:00-9:00AM	Unlocked Potential using Wastewater Monitoring and Modeling <i>Jennab Maier, City of Eugene</i> The City of Eugene's wastewater collection system maintenance and improvements are now being driven by our commitment to high-quality data-intensive flow monitoring and hydraulic modeling. These programs are being used to track inflow and infiltration, direct and quantify rehabilitation efforts, and to further understand system capacity. In this presentation, you will learn how Eugene's programs work and how we have benefitted from them, so you can make an informed decision about whether programs like these are right for your organization.
#9	9:05-10:05AM	Wastewater System Rehab: Postponing the Apocalypse <i>Patrick M Cox II, P.E., City of Eugene</i> For decades, the City of Eugene has been using various techniques to rehabilitate our aging wastewater collection system. The primary purpose of these capital projects is to reduce the high volume of rain derived inflow and infiltration from the wastewater system. This presentation is an overview of how Eugene selects projects to build, how they get built, and why we do it in the first place.
#10	10:20-11:20AM	Anatomy of A Successful Sanitary Sewer Lateral Rehabilitation Program <i>Sue Nelson, P.E. & Sharon Darroux, City of St. Helens, OR</i> A complete, step-by-step, examination of the City of St. Helens Sanitary Sewer Lateral Rehabilitation Program. Presentation covers the City's unique approach to sanitary sewer lateral rehabilitation, program development and management, lateral inspection and repair, private property access issues and other unique challenges encountered, and finally a summation of outstanding results of the program. The City of St. Helens has one of the most successful sanitary sewer lateral rehabilitation programs in the nation.
#11	11:25-12:25PM	Access Rights for Water and Wastewater Utilities <i>Sarah Liljefelt, Schroeder Law Office</i> Learn best practices for obtaining and confirming access rights and the scope of such access rights for repairs, removal of access barriers, and more.
#12	1:25-2:25PM	Vendor's Display
#13	2:30-3:30PM	Risk Assessment of Underground Vaults - Protecting Workers from Common Hazards <i>Frank Ray, EJ</i> This presentation explores the safety hazards found in underground vaults, manholes and pump stations. This presentation will conduct a risk assessment of underground structures, identifying various hazards and the OSHA requirements for protecting

		workers from those hazards. Some of the OSHA topics covered are Fall Hazards, Confined Space Hazards and Lockout/Tagout. Too many workers are injured or killed each year and often could be protected with very little effort or cost. This course will teach about the safety risks found at a typical utility vault / sewer pump station.
#14	4:00-5:00PM	Odor Control in Collection Systems <i>John Sanyer, BioAir Solutions</i> Describe sources, pathway and control of collection system vapor phase odors and gases. Discussion of gases/odors moving through collection system and the potential pathways of escape, with potential solutions to contain and eliminate odors and gases.
THURSDAY-MARCH 26, 2020		
#15	8:00-9:00AM	Yard Pipe - Not So Straight Forward <i>Christina Totland, Contech Engineered Solutions</i> Ideas for overflow and yard pipe connections that can be installed on an "as-is" site with "on-site" equipment.
#16	9:05-10:05AM	Sewer Main Aeration System <i>Jim White, In-line Aeration/Oxygenation – Groundwater and Wastewater Treatment</i> In-line oxygenation is the dissolution of oxygen from either atmospheric air or concentrated oxygen into a water mainline without the need for basins or tanks. The benefits of an in-line configuration include: <ul style="list-style-type: none"> - No need to break pressure in a pressurized line; - Reduced footprint—eliminates need for a basin; - Homogenous mixture that is achieved almost instantly regardless of mainline flow rate variation.
#17	10:20-11:20AM	Winning the War Against Wipes <i>Dave Barkey, JWC Environmental, Inc.</i> The composition of modern sewage is vastly different than influent from just a few decades ago and current pump stations' equipment was never designed to handle it. This evolution is leading to unplanned maintenance, exposing workers to safety risks, equipment damage and even spills. One of the biggest culprits is the increased use of "flushable" wipes and other disposable, non-dispersible fabrics that end up in the waste stream. The presentation will first investigate the state of the wipes market today and current developments in the industry. We will then look at the effectiveness of PSA and legal actions at the municipal, state and federal levels to combat the wipes menace. Finally, we will look at technical options for pumps and grinders to pre-condition solids in wastewater collection systems. The overall goal is to provide information on the various options available to provide effective solutions to prevent pump damage, eliminate worker safety risks, and reduce the time and energy costs associated with pump clogging.
#18	11:25-12:25PM	Sewer Infrastructure Condition Assessment and Prioritization <i>Shae Talley, J-U-B Engineers</i> This presentation explores the importance of asset management; details the data collection process; identifies a method for assessing the condition of existing sewer infrastructure; and provides a technique for prioritizing improvements to extend the life of the system.

#19	1:25-2:25PM	<p>A Comprehensive Planning Approach to Cost Effectiveness Analysis (Conveyance, Treatment, & I/I Reduction)</p> <p><i>Jessica Rinner, Clackamas County Water Environment Services; Shad Roundy, Jacobs</i></p> <p>Many utilities face decisions on capital and O&M expenditures related to treatment capacity upgrades, trunk sewer and pump station condition and capacity improvements, and I&I reduction improvements. Critical questions for decision makers include: What should the target I&I reduction and timing be to offset or delay conveyance and treatment costs?</p> <p>Where do I&I reduction costs offset potential growth-related expenditures?</p> <p>What are the impacts of system I&I degradation and remaining useful life of infrastructure?</p> <p>How does a comprehensive program encompassing treatment, conveyance, and I&I reduction affect decision on rates?</p> <p>What opportunities exist to implement, incentivize, and accelerate I&I reduction?</p> <p>This presentation will focus on recent efforts in Water Environment Services to evaluate I&I by sub-basin and compare capital and O&M costs encompassing conveyance, treatment, and I&I reduction improvements. The analysis utilized hydraulic modeling and condition and age assessments to populate a cost effectiveness model. Statistical analysis was used to evaluate system risk and infrastructure degradation. 40 sub-basins were sequential tested for three I&I reduction levels and five timeframes to develop cost effectiveness curves. These curves were used to select an optimal target reduction and timeframe for implementation. The I&I cost effectiveness analysis is being used to inform a capital improvement program and promote I&I reduction in contributing communities.</p>
#20	2:30-3:30PM	<p>Modern Lift Station Design</p> <p><i>Alden Meade, Xylem, Inc.</i></p> <p>Lift station design guidelines for small to mid-sized municipal wastewater lift stations requiring pumps in the 2.4-hp to 105-hp range. An overview that will assist in creating a defining criterion for future designs that are performance based in order to meet modern wastewater requirements.</p>
#21	3:45-4:45PM	<p>Nozzle Selection For Every Job (Joint session with Stormwater)</p> <p><i>Eric Lundy, Owen Equipment</i></p> <p>In this class we will discuss proper nozzle selection based on application. We will also differentiate the relationship between RPM, GPM, and PSI. We will review the different performance and efficiency technologies available in nozzles. In addition, we will talk about safety and proper operations of nozzles.</p>

Basics & Beyond ~ Pauling Center P131

TUESDAY 3/24/20		WEDNESDAY 3/25/20		THURSDAY 3/26/20	
8:00 AM	Opening Ceremony RANDALL GYMNASIUM	8 8:00AM	Sample Collection and Sampling Plans (1 of 2) <i>Erika Schwender, Professional Training Association</i>	15 8:00AM	Microbiology: Total & Fecal Coliform Testing Hands-On Workshop (1 of 2) <i>Erika Schwender, Professional Training Association</i>
1 8:15 AM	KEYNOTE Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> RANDALL GYMNASIUM	9 9:05AM	Sample Collection and Sampling Plans (2 of 2)	16 9:05AM	Microbiology: Total & Fecal Coliform Testing Hands-On Workshop (2 of 2)
2 9:30 AM	Utilizing Microsoft Excel for Operators in the Waste Water Industry <i>Jason Van Guilder, City of Sumner, WA</i>	10 10:20AM	BOD (1 of 2) <i>Erika Schwender, Professional Training Association</i>	17 10:20AM	Lab Documentation & QA/QC (1 of 2) <i>Erika Schwender, Professional Training Association</i>
3 10:35AM	Utilizing Microsoft Excel for Operators <i>Continued</i>	11 11:25AM	BOD (2 of 2)	18 11:25AM	Lab Documentation & QA/QC (2 of 2)
4 12:35PM	Utilizing Microsoft Excel for Operators <i>Continued</i>	12 1:25PM	<i>Manufacturer Representative's Display</i> <i>Randall Gymnasium</i>	19 1:25PM	Regulatory Compliance & NPDES Permits <i>Erika Schwender, Professional Training Association</i>
5 1:40PM	Utilizing Microsoft Excel for Operators <i>Continued</i>	13 2:30PM	SOPs <i>Erika Schwender, Professional Training Association</i>	20 2:30PM	No Session
6 2:55PM	Wastewater Operator Certification Basics <i>Paula Carson, Program Assistant, Oregon DEQ</i>	14 4:00	Effluent Toxics Characterization Monitoring Guidance (Pauling 101) <i>Aliana Britson and Sarah Rockwell, Oregon DEQ</i>	21 3:45PM	No Session
7 4:00PM	No Session				

Basics & Beyond Session Descriptions

TUESDAY - MARCH 24, 2020

	7:00-8:00AM	REGISTRATION/COFFEE AND DONUTS -- Fireside Lounge
	8:00-8:15AM	Opening announcements
#1	8:15-9:15AM	Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> Poly and Per Fluoro Alkyl Substances (PFAS) are used for foams, firefighting, and water/stain repellants. These compounds (which typically end up in biosolids) are ubiquitous and found to be persistent, bioaccumulative, and toxic. ORDEQ will present the issues associated with these compounds and the steps taken to control them.
#2	9:30-10:30AM	Utilizing Microsoft Excel for Operators in the Waste Water Industry <i>Jason Van Guilder, City of Sumner, WA</i> Key to success in modern water utility operations is the ability to quickly and competently make use of data in a variety of forms. This session will demonstrate methods for building spreadsheet to perform routine calculations, store records in an accessible format, and effectively manage projects. Examples of spreadsheet to be presented include templates for Pipe Flow Analysis, Pump Testing, Analyzing SCADA Data, Water Auditing, and Project Budgeting. This session is formatted in such a way that students will gain an ability to perform complex analytic processes in a way that is repeatable, clearly documented, and in a presentable format.
#3	10:35-11:35AM	Utilizing Microsoft Excel for Operators in the Waste Water Industry <i>Continued</i>
#4	12:35-1:35PM	Utilizing Microsoft Excel for Operators in the Waste Water Industry <i>Continued</i>
#5	1:40-2:40PM	Utilizing Microsoft Excel for Operators in the Waste Water Industry <i>Continued</i>

#6	2:55-3:55PM	Wastewater Operator Certification Basics <i>Paula Carson, Program Assistant, Oregon DEQ</i> This presentation will walk operators through the process of obtaining their wastewater certification. Meet one of the program coordinators and ask questions about the process.
#7	4:00-5:00PM	No Session
WEDNESDAY--MARCH 25, 2020		
#8	8:00-9:00AM	Sample Collection and Sampling Plans (1 of 2) <i>Erika Schwender, Executive Director, Professional Training Association</i> Analytical data is only defensible if proper sample collection, preservation and storage procedures are applied. Learn why it is important to develop and follow a sampling plan, and how to properly sample for a multitude of parameters.
#9	9:05-10:05AM	Sample Collection and Sampling Plans (2 of 2)
#10	10:20-11:20AM	BOD (1 of 2) <i>Erika Schwender, Executive Director, Professional Training Association</i> This hands-on workshop will explain how to perform BOD - from calibrating the probe, preparing reagents and sample set up, to quality control, documentation and troubleshooting.
#11	11:25-12:25PM	BOD (2 of 2)
#12	1:25-2:25PM	Vendor's Display
#13	2:30-3:30PM	SOPs <i>Erika Schwender, Executive Director, Professional Training Association</i> Come learn the importance of having established, well-documented procedures, and how to go about building your own SOPs.
#14	4:00-5:00PM	Effluent Toxics Characterization Monitoring Guidance (Joint Session with Wastewater Pretreatment: Pauling 101) <i>Aliana Britson and Sarah Rockwell, Oregon DEQ</i> Ms. Britson and Ms. Rockwell will co-present an overview of best practices for industrial wastewater sample collection and data submission for Effluent Toxics Characterization Monitoring.
THURSDAY-MARCH 26, 2020		
#15	8:00-9:00AM	Microbiology: Total & Fecal Coliform Testing Hands-On workshop (1 of 2) <i>Erika Schwender, Executive Director, Professional Training Association</i> This workshop will explore a variety of approved analytical methods and help the student better understand how to determine which method is best suited for your operation.
#16	9:05-10:05AM	Microbiology: Total & Fecal Coliform Testing Hands-On workshop (2 of 2)
#17	10:20-11:20AM	Lab Documentation & QA/QC (1 of 2) <i>Erika Schwender, Executive Director, Professional Training Association</i> This workshop will cover how to ensure your data is legally defensible by using proper QA/QC procedures and controls, and sound documentation practices.
#18	11:25-12:25PM	Lab Documentation & QA/QC (2 of 2)
#19	1:25-2:25PM	Regulatory Compliance & NPDES Permits <i>Erika Schwender, Executive Director, Professional Training Association</i> This presentation will cover the requirements of discharge permits, where the requirements originate and how you can find the regulations that apply to you, and which agencies you need to work with to obtain a permit and maintain compliance.
#20	2:30-3:30PM	No Session
#21	3:45-4:45PM	No Session

Water Resource Recovery ~ Pauling Center P102

TUESDAY 3/24/20		WEDNESDAY 3/25/20		THURSDAY 3/26/20	
8:00 AM	Opening Ceremony RANDALL GYMNASIUM	8 8:00AM	Fernhill Wetlands for Tertiary Treatment of Wastewater <i>Leila Barker CWS Fernhill Wetlands</i>	15 8:00AM	Effect of FOGs Impact on Dewaterability <i>Ornella Sosa-Hernandez, Clean Water Services</i>
1 8:15 AM	KEYNOTE Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> RANDALL GYMNASIUM	9 9:05AM	Treating WRRF Effluent <i>Adam Johns, CWS Pure Water Wagon</i>	16 9:05AM	Overview of FOG <i>Josh Miner, Carrollo</i>
2 9:30 AM	Biosolids Site Authorization Process from First Contact to DEQ Approval <i>Bob Watson, Clackamas County WES</i>	10 10:20AM	Biosolids Regulatory Issues <i>Paul Kennedy, Oregon DEQ</i>	17 10:20AM	Real time Centrate Analysis for Cost Effective Dewatering <i>Tony Guerra, Valmet</i>
3 10:35AM	City of Portland's Renewable Natural Gas Facility: From Waste to Renewable Vehicle Fuel <i>Karen Bill, HDR Inc.</i>	11 11:25AM	Biosolids Management Plans <i>Paul Kennedy, Oregon DEQ</i>	18 11:25AM	No Session
4 12:35PM	Lowering Co-Digestion Costs Through an Innovative Combination of Novel Food Waste Pre-processing Technique and Strategies for Improving Solids Treatment <i>Bhargavi Subramanian, Kennedy Jenks</i>	12 1:25PM	Autothermal Aerobic Digestion <i>Tim Munro, City of McMinnville</i>	19 1:25PM	No Session
5 1:40PM	Biosolids Primer <i>Brian Hemphill, Hemphill Water Engineering</i>	13 2:30PM	Manufacturer Representative's Display <i>Randall Gymnasium</i>	20 2:30PM	Sruvite: Methods of Prevention, Removal, and Recovery <i>Brett Laney, Clean Water Services</i>
6 2:55PM	Biosolids Hauling <i>Garrett Behrman, Tribeca Transport</i>	14 4:00	Biogas Upgrading: RNG Options for Vehicle Fuel and Pipeline Injection <i>Ken Black, Beaver Equipment, LLC</i>	21 3:45PM	Lessons Learned from A Decade of Phosphorus Recovery at The Durham WRRF <i>Brett Laney, Clean Water Services</i>
7 4:00PM	Biosolids Applications <i>Garrett Behrman, Tribeca Transport</i>				

Water Resource Recovery Session Descriptions

TUESDAY - MARCH 24, 2020

	7:00-8:00AM	REGISTRATION/COFFEE AND DONUTS -- Fireside Lounge
	8:00-8:15AM	Opening announcements
#1	8:15-9:15AM	Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> Poly and Per Fluoro Alkyl Substances (PFAS) are used for foams, firefighting, and water/stain repellants. These compounds (which typically end up in biosolids) are ubiquitous and found to be persistent, bioaccumulative, and toxic. ORDEQ will present the issues associated with these compounds and the steps taken to control them.
#2	9:30-10:30AM	Biosolids Site Authorization Process From First Contact to DEQ Approval <i>Bob Watson, Clackamas County Water Environment Services</i> Methods employed in the field for application of liquid and cake biosolids, and in successfully working with property owners and neighbors.
#3	10:35-11:35AM	City of Portland's Renewable Natural Gas Facility: From Waste to Renewable Vehicle Fuel <i>Karen Bill, HDR Inc.</i> Detailed discussion of the City of Portland's Renewable Natural Gas Facility

#4	12:35-1:35PM	Lowering Co-Digestion Costs Through an Innovative Combination of Novel Food Waste Pre-processing Technique and Strategies for Improving Solids Treatment <i>Bhargavi Subramanian, Kennedy Jenks</i> This session will cover lowering co-digestion costs through an innovative combination of novel food waste pre-processing technique and strategies for Improving solids treatment
#5	1:40-2:40PM	Biosolids Primer <i>Brian Hemphill, Hemphill Water Engineering</i> Basics of residuals in wastewater, to provide background for managing residuals and biosolids.
#6	2:55-3:55PM	Biosolids Hauling <i>Garrett Behrman, Tribeca Transport</i> Covers the techniques used in the application of biosolids
#7	4:00-5:00PM	Biosolids Applications <i>Garrett Behrman, Tribeca Transport</i> Covers the hauling of biosolids to application sites
WEDNESDAY--MARCH 25, 2020		
#8	8:00-9:00AM	Fernhill Wetlands for Tertiary Treatment of Wastewater <i>Leila Barker CWS Fernhill Wetlands</i> Creating habitat with secondary effluent while meeting NPDES treatment requirements
#9	9:05-10:05AM	Treating WRRF Effluent <i>Adam Johns, CWS Pure Water Wagon</i> Treating WRRF effluent to ultra pure water standards
#10	10:20-11:20AM	Biosolids Regulatory Issues <i>Paul Kennedy, Oregon DEQ</i> Biosolids risk assessment
#11	11:25-12:25PM	Biosolids Management Plans <i>Paul Kennedy, Oregon DEQ</i> Site authorizations and NRCS soil web
#12	1:25-2:25PM	Autothermal Aerobic Digestion <i>Tim Munro, City of McMinnville</i> Description of the Class A ATAD process, how it was developed, and its operation in McMinnville.
#13	2:30-3:30PM	Vendor's Display
#14	4:00-5:00PM	Biogas Upgrading: RNG Options For Vehicle Fuel And Pipeline Injection <i>Ken Black, Beaver Equipment, LLC</i> Biogas is a versatile, recoverable resource. This session will cover modern applications and technologies for use as vehicle fuel and pipeline injection.
THURSDAY-MARCH 26, 2020		
#15	8:00-9:00AM	Effect of FOGs Impact on Dewaterability <i>Ornella Sosa-Hernandez, Clean Water Services</i> Over the past five years, a deterioration of the dewatering performance has been observed while the volume of FOG that is handled has increased at the Durham AWWTF. The FOG load and its variable composition have been suspected to cause dewatering issues in addition to a possible decline in centrifuge performance from equipment age. Therefore Clean Water Services investigated the impact of the digester feed characteristics on the dewaterability of digested sludge. Two digesters were operated in parallel and more FOG was fed to one digester than the other. In addition, a characterization of the digester feed and the digested sludge was performed during the test period. Digestion stability was also monitored as one digester was fed high volatile solids load over a short period of time. The results indicated that FOG addition had no negative effect on the dewaterability of the digested sludge. While the cake solids percentage seemed to improve with higher FOG VS load proportion, the overall polymer demand was more affected by the thickened primary and

		secondary sludge VS loads to the digesters than the amount of FOG in the feed. The presence of charge compounds in the digestate such as phosphate and cations had also an effect in the dewatering characteristics. Both digesters were stable during the test period despite the fact that unusual high load conditions were maintained over a brief period of time. However, more alkalinity was consumed when more FOG was added thus the repercussion on digester long term stability should be investigated.
#16	9:05-10:05AM	Overview of FOG <i>Josh Miner, Carrollo</i> General overview of Fats, Oils and Grease as a valuable, recoverable resource
#17	10:20-11:20AM	Real time Centrate Analysis for Cost Effective Dewatering <i>Tony Guerra, Valmet</i> A presentation of Valmet's centrate analyzer technology and its recent application at the Durham WRRF.
#18	11:25-12:25PM	No Session
#19	1:25-2:25PM	No Session
#20	2:30-3:30PM	Struvite: Methods of Prevention, Removal, and Recovery <i>Brett Laney, Clean Water Services</i> Will cover why and where Struvite forms and strategies for prevention, removal and recovery
#21	3:45-4:45PM	Lessons Learned From A Decade Of Phosphorus Recovery At The Durham WRRF <i>Brett Laney, Clean Water Services</i> Will cover initial assumptions vs 10 years of operating performance, unexpected challenges and how we addressed them.

Stormwater ~ Gregory Forum B & C

TUESDAY 3/24/20		WEDNESDAY 3/25/20		THURSDAY 3/26/20	
8:00 AM	Opening Ceremony RANDALL GYMNASIUM	8 8:00AM	IDDE Investigation - Storm to Sanitary and Sanitary to Storm <i>Nikki Guillot, Environmental Scientist, City of Vancouver, WA</i>	15 8:00AM	Regional Approach to SW Systems <i>Chris Hass, P.E., Contech Engineered Solutions LLC</i>
1 8:15 AM	KEYNOTE Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> RANDALL GYMNASIUM	9 9:05AM	<i>Manufacturer Representative's Display</i> <i>Randall Gymnasium</i>	16 9:05AM	Inspection and O&M of SW systems <i>Chris Hass, P.E., Contech Engineered Solutions LLC</i>
2 9:30 AM	Reducing Pollutants at the Source <i>Depave</i>	10 10:20AM	Monitoring the Effectiveness of Green Stormwater Infrastructure <i>Katie Holzer, Watershed Scientist, City of Gresham, Dept of Environmental Services</i>	17 10:20AM	White River Restoration Projects <i>Robby Wright, City of Sumner, WA</i>
3 10:35A M	Where Drinking Water Meets Stormwater <i>Christine Hollenbeck, Public Education & Outreach Coordinator</i> <i>Kim Swan, Water Resource Manager, Clackamas River Water Providers</i>	11 11:25AM	Stormwater Outreach Programs Local, Regional and Developing <i>Eric Lambert, Environmental Outreach Specialist, Clark County Public Works, Clean Water Division</i>	18 11:25AM	Flow Monitoring Sewer and Storm Sites <i>Ken Navidi, Bainbridge Associates Inc.</i>
4 12:35P M	Vancouver's Watershed Health Assessment <i>Jess Brown, Herrera Environmental</i>	12 1:25PM	Design and Installation of Vegetated Facilities for CCC <i>Nathan Kappen, Walker Macy</i>	19 1:25PM	Using Retrofits and Restoration to Minimize Storm Runoff Impacts <i>Ron Wierenga, Clackamas WES</i>
5 1:40P M	OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Bioswale <i>Tyler S. Radniecki, Associate Professor of Environmental Engineering, OSU</i>	13 2:30PM	Inspection & Maintenance of Vegetated Facilities <i>Nathan Kappen, Walker Macy</i>	20 2:30PM	No Session
6 2:55P M	Carli Creek Water Quality Project: Lessons Learned <i>Gail Shaloun, Clackamas Water Environment Services</i>	14 4:00	No Session	21 3:45PM	Nozzles for Every Occasion (Joint session w/ Collections: Gregory Forum A) <i>Eric Lundy, Owen Equipment</i>
7 4:00P M	No Session				

Stormwater

TUESDAY - MARCH 24, 2020

	7:00-8:00AM	REGISTRATION/COFFEE AND DONUTS -- Fireside Lounge
	8:00-8:15AM	Opening announcements
#1	8:15-9:15AM	Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> Poly and Per Fluoro Alkyl Substances (PFAS) are used for foams, firefighting, and water/stain repellants. These compounds (which typically end up in biosolids) are ubiquitous and found to be persistent, bioaccumulative, and toxic. ORDEQ will present the issues associated with these compounds and the steps taken to control them.
#2	9:30-10:30AM	Reducing Pollutants at the Source <i>Depave</i> Paved areas are a significant source of contaminants and increase the volume of runoff, often requiring the expense of installation and maintenance of treatment systems. Learn how to reduce the many pollutants from paved surfaces through the environmental and social benefits of depaving, and how we engage site hosts and neighbors in designing the community greenspace that replaces the under-utilized asphalt.

#3	10:35-11:35AM	Where Drinking Water Meets Stormwater <i>Christine Hollenbeck, Public Education & Outreach Coordinator</i> <i>Kim Swan, Water Resource Manager, Clackamas River Water Providers</i> The Clackamas River Water Providers (CRWP) is a coalition of water providers that get their drinking water from the Clackamas River, which combined provide drinking water to over 300,000 people in Clackamas and Washington Counties. Because of the impacts nonpoint source pollution/ stormwater pollution can have on drinking water source it create opportunities for us as water providers to work with our stormwater utilities within the watershed to look at ways to reduce stormwater pollution. This presentation will look at how the CRWP has been working with Clackamas County's Water Environment Services (our stormwater utility) on stormwater related issues and how this these efforts have been beneficial for both parties by working to reduce stormwater pollution for downstream water providers and in return helping WES meet some of their MS4 Permit requirements.
#4	12:35-1:35PM	Vancouver's Watershed Health Assessment <i>Jess Brown, Herrera Environmental</i> Understanding watershed health - critical for assessing program effectiveness, educating the public, and improving data collection efforts. Herrera has been supporting the City of Vancouver by evaluating watershed health data collected under various efforts: ambient water quality monitoring of Burnt Bridge Creek.
#5	1:40-2:40PM	OSU-Benton County Green Stormwater Infrastructure Research (OGSIR) Bioswale <i>Tyler S. Radniecki, Associate Professor of Environmental Engineering, OSU</i> Bioswales have long been designed and used to reduce peak stormwater flow and are now being utilized to reduce stormwater contamination. However, field-scale case studies report mixed performance results with some bioswales being cited as a source of contamination. Detailed long-term field studies are critically needed in order to better understand the fate and transport of contaminants through bioswales in order to improve their design and performance. This research characterized the stormwater runoff from a Benton Country (Corvallis, OR) mixed use maintenance and service (M&S) facility, and evaluated the temporal performance of the OSU-Benton Country Green Stormwater Infrastructure Research (OGSIR) facility bioswale in removing pollutants from this collected runoff.
#6	2:55-3:55PM	Carli Creek Water Quality Project: Lessons Learned <i>Gail Shaloun, Clackamas Water Environment Services</i> Though large capital projects have an extensive team of people to plan for and address the wide range of tasks and requirements, it is not uncommon for something to not go as planned or for unexpected issues to arise. Learn how the staff of Clackamas Water Environment Services responded to and resolved problems while keeping this 15-acre water quality treatment wetland project moving forward. The project includes a constructed wetland, stream restoration elements, and 20-ft deep stormwater diversion piping over a distance of over 1700 feet.
#7	4:00-5:00PM	No Session
WEDNESDAY--MARCH 25, 2020		
#8	8:00-9:00AM	IDDE Investigation - Storm to Sanitary and Sanitary to Storm <i>Nikki Guillot, Environmental Scientist, City of Vancouver, WA</i> Intensive downtown IDDE investigation that goes both ways, sewer-to-storm and storm-to-sewer
#9	9:05-10:05AM	Vendor's Display

#10	10:20-11:20AM	Monitoring the Effectiveness of Green Stormwater Infrastructure <i>Katie Holzer, Watershed Scientist, City of Gresham, Dept of Environmental Services</i> Green stormwater infrastructure has been increasing rapidly in the region over the past couple of decades. It includes stormwater ponds, rain gardens, planters, and green roofs. There are many potential benefits to green stormwater infrastructure when it is designed and constructed in ways which make sense for the particular site. Monitoring of the infrastructure is important to evaluate how it is performing and if it is doing what we hoped it would. This presentation will describe strategies which we have found effective for monitoring, share some of the major lessons we have learned, and demonstrate how we have adapted. Unlike grey infrastructure, no two green facilities are the same, and the ability to effectively monitor and adapt is critical to success.
#11	11:25-12:25PM	Stormwater Outreach Programs Local, Regional and Developing <i>Eric Lambert, Environmental Outreach Specialist, Clark County Public Works, Clean Water Division</i> Local, Regional and Developing Outreach Programs for Stormwater Protection
#12	1:25-2:25PM	Design and Installation of Vegetated Facilities for CCC <i>Nathan Kappen, Walker Macy</i> Learn about the opportunities the redevelopment of the CCC campus provided for stormwater pollutant reduction. Understand the needs, how solutions were selected, the design criteria, installation and lessons learned.
#13	2:30-3:30PM	Inspection & Maintenance of Vegetated Facilities <i>Nathan Kappen, Walker Macy</i> Guided tour of the treatment facilities on the CCC campus. Participants will learn on how to inspect the components of different types of facilities, evaluate condition, identify common problems and determine maintenance actions and frequency to maintain optimal function.
#14	4:00-5:00PM	No Session
THURSDAY-MARCH 26, 2020		
#15	8:00-9:00AM	Regional Approach to SW Systems <i>Chris Hass, P.E., Contech Engineered Solutions LLC</i> Traditional SW design is for onsite facilities but these multiple smaller facilities are resource intensive, have limited performance and can present conflicts with adjacent properties. This session will detail these issues and present the benefits of moving to more regional and subregional facilities for water quality protection.
#16	9:05-10:05AM	Inspection and O&M of SW systems <i>Chris Hass, P.E., Contech Engineered Solutions LLC</i> Inspection and O&M of SW systems, for both general and also for specific information on the systems offered by Contech Engineered Solutions.
#17	10:20-11:20AM	White River Restoration Projects <i>Robby Wright, City of Sumner, WA</i> A REGIONAL DISCUSSION In the center of the vibrant Puget Sound region, one stretch of the White River through Sumner poses challenges for wildlife, for infrastructure and for the regional economy. In 2014, the State of Washington invested \$824,000 for Sumner to lead a dialogue group regarding a small stretch of the river. It became a full comprehensive plan of four companion projects for the full stretch of the White through Sumner. DECADES OF CONTROVERSY The White River's flow sparked a 100-year-old fight that involved two counties, a lawsuit and even dynamite. The river now flows against its natural course through Sumner. At the time, dredging and Mud Mountain Dam offered protection against flooding. Times have changed. LASTING SEDIMENT Sediment and debris continue to wash down Mt. Rainier from the headwaters into Sumner, posing hazards for endangered species and high risk of flooding during even normal rainstorms.

#18	11:25-12:25PM	Flow Monitoring Sewer and Storm Sites <i>Ken Navidi, Bainbridge Associates Inc.</i> Topics Covered: 1.) Why we monitor sewer and storm 2.) Selecting a good site for flow monitoring 3.) Importance of selecting the proper technology for monitoring flow 4.) What are my options when dealing with tough monitoring locations 5.) Steps to making flow monitoring easier. The presentation will include real time live flow metering data.
#19	1:25-2:25PM	Using Retrofits and Restoration to Minimize Storm Runoff Impacts <i>Ron Wierenga, Environmental Services Manager, Clackamas Water Environment Services</i> Your stormwater management program's progressive design standards, sound asset management, and strong pollution prevention programs are critical to your success in managing the harmful impacts of stormwater runoff on receiving waters. At some point though you're going to need to build something. Storm system master plans are often full of repair and capacity projects that address chronic flooding problems. They should also include your key projects that improve the pollution removal performance of your system and that improve the resiliency of urban streams. Finding and completing these projects is challenging, but the good news is there are many projects in the region that serve as examples. In this presentation we'll review a few key retrofit and restoration examples that help us think beyond the basics.
#20	2:30-3:30PM	No Session
#21	3:45-4:45PM	Nozzles for Every Occasion (Joint session w/ Collections: Gregory Forum A) <i>Eric Lundy, Owen Equipment</i> In this class we will discuss proper nozzle selection based on application. We will also differentiate the relationship between RPM, GPM, and PSI. We will review the different performance and efficiency technologies available in nozzles. In addition, we will talk about safety and proper operations of nozzles.

Safety & Health ~ Pauling Center P132

TUESDAY 3/24/20		WEDNESDAY 3/25/20		THURSDAY 3/26/20	
8:00 AM	Opening Ceremony RANDALL GYMNASIUM	8 8:00AM	JHA Worksheet <i>Aubrey Sakaguichi, SAIF Corporation</i>	15 8:00AM	Distracted Driving - Part 1 <i>Patti McGuire, SAIF Corporation</i>
1 8:15 AM	KEYNOTE Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> RANDALL GYMNASIUM	9 9:05AM	Pretask Planning <i>Aubrey Sakaguichi, SAIF Corporation</i>	16 9:05AM	Distracted Driving - Part 2
2 9:30 AM	Flagging Certification Training, Part 1 of 5 <i>Tony Jobanke, ODOT</i>	10 10:20AM	Manufacturer Representative's Display <i>Randall Gymnasium</i>	17 10:20AM	OSHA Ladder Rule Changes <i>Bryon Snapp, Oregon OSHA</i>
3 10:35A M	Flagging Certification Training, Part 2 of 5	11 11:25AM	Lock Out / Tag Out <i>Greg McDonald, Ritz Safety</i>	18 11:25AM	Excavation Safety and the role of the Competent Person- Part 1 <i>Eric Fullan, City of Hillsboro</i>
4 12:35P M	Flagging Certification Training, Part 3 of 5	12 1:25PM	Protection at Heights <i>Greg McDonald, Ritz Safety</i>	19 1:25PM	Excavation Safety - Part 2
5 1:40PM	Flagging Certification Training, Part 4 of 5	13 2:30PM	Total Worker Health <i>Patti McGuire, SAIF Corporation</i>	20 2:30PM	Excavation Safety - Part 3
6 2:55PM	Flagging Certification Training, Part 5 of 5	14 4:00	No Session	21 3:45PM	Slips Trips and Falls <i>Judy West, Clean Water Services</i>
7 4:00PM	No Session				

Safety Session Descriptions

TUESDAY - MARCH 24, 2020

	7:00-8:00AM	REGISTRATION/COFFEE AND DONUTS -- Fireside Lounge
	8:00-8:15AM	Opening announcements
#1	8:15-9:15AM	Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> Poly and Per Fluoro Alkyl Substances (PFAS) are used for foams, firefighting, and water/stain repellants. These compounds (which typically end up in biosolids) are ubiquitous and found to be persistent, bioaccumulative, and toxic. ORDEQ will present the issues associated with these compounds and the steps taken to control them.
#2	9:30-10:30AM	Flagging Certification Training, Part 1 of 5 <i>Tony Jobanke, ODOT</i> Students MUST attend the entire 5 hour session to be eligible for certification. This training covers the safety requirements for flaggers and proper techniques for moving traffic cautiously and consistently through work zones.
#3	10:35-11:35AM	Flagging Certification Training, Part 2 of 5 Students MUST attend the entire 5 hour session to be eligible for certification.
#4	12:35-1:35PM	Flagging Certification Training, Part 3 of 5 Students MUST attend the entire 5 hour session to be eligible for certification.
#5	1:40-2:40PM	Flagging Certification Training, Part 4 of 5 Students MUST attend the entire 5 hour session to be eligible for certification.
#6	2:55-3:55PM	Flagging Certification Training, Part 5 of 5 Students MUST attend the entire 5 hour session to be eligible for certification.
#7	4:00-5:00PM	No Session

WEDNESDAY--MARCH 25, 2020

#8	8:00-9:00AM	JHA Worksheet <i>Aubrey Sakaguichi, SAIF Corporation</i>
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		How to create and produce a Job Hazard Analysis for tasks in the workplace. A JHA makes workers aware of electrical or mechanical or fall hazards they may encounter, as well as choosing the proper PPE.
#9	9:05-10:05AM	Pretask Planning <i>Aubrey Sakaguchi, SAIF Corporation</i> This session will outline how to prepare a work crew for the assigned task of the day by using a JHA as well as choosing the correct PPE for the work.
#10	10:20-11:20AM	Vendor's Display
#11	11:25-12:25PM	Lock Out / Tag Out <i>Greg McDonald, Ritz Safety</i> This session will provide detailed instruction on how to isolate and lock each energy source for a given piece of equipment, helping to prevent the startup of equipment that may result in injuring a worker.
#12	1:25-2:25PM	Protection at Heights <i>Greg McDonald, Ritz Safety</i> This session will discuss the four generally accepted categories for fall protection: fall elimination, fall prevention, fall arrest, and administrative controls.
#13	2:30-3:30PM	Total Worker Health <i>Patti McGuire, SAIF Corporation</i> Total Worker Health strategies address the work environment, management systems, and workplace culture to help organizations to promote health, safety and overall well-being on and off the job.
#14	4:00-5:00PM	No Session
THURSDAY-MARCH 26, 2020		
#15	8:00-9:00AM	Distracted Driving - Part 1 <i>Patti McGuire, SAIF Corporation</i> Motor vehicle crashes are the leading cause of work-related deaths in the U.S. The type of industry or company doesn't matter - the risk is real for anyone getting behind the wheel. We'll also discuss the 5 causes of crashes. Environmental hazards as well as human elements.
#16	9:05-10:05AM	Distracted Driving - Part 2 <i>Patti McGuire, SAIF Corporation</i>
#17	10:20-11:20AM	OSHA Ladder Rule Changes <i>Bryon Snapp, Oregon OSHA</i> OR-OSHA rules on ladder use have changed. New rules and how they affect employers and employees will be discussed.
#18	11:25-12:25PM	Excavation Safety Safety and the role of the Competent Person- Part 1 <i>Eric Fullan, City of Hillsboro</i> Recent trench collapses illustrate the importance of the proper use of protective systems. This class will focus on OSHA's Excavation Standard including proper safe work practices while working in and around excavations, proper soils analysis and classifications and protective systems with added emphasis on the role and responsibilities of the Competent Person requirements. Training Objectives include: <ul style="list-style-type: none"> • Understanding key definitions and terms • Understanding soils classifications and compositions • Protective systems • OSHA's Tables and Charts and the use of Tabulated Data • Safe work practices in and around open excavations • Understanding the role and responsibility as the Competent Person

#19	1:25-2:25PM	Excavation Safety - Part 2
#20	2:30-3:30PM	Excavation Safety - Part 3
#21	3:45-4:45PM	Slips Trips and Falls <i>Judy West, Clean Water Services</i> How can we avoid slips, trips, and falls at work? What are the main causes of slips, trips, and falls and how we can prevent them in the workplace.

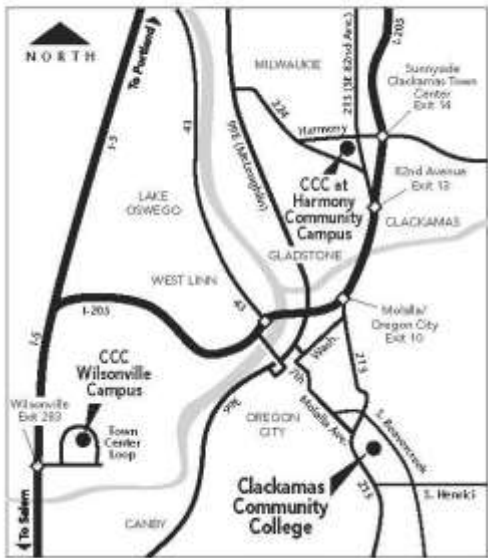
Technology, Asset Management & Activated Sludge~ Pauling Center P164					
TUESDAY 3/24/20 Technology		WEDNESDAY 3/25/20 Activated Sludge		THURSDAY 3/26/20 Asset Management	
8:00 AM	Opening Ceremony RANDALL GYMNASIUM	8 8:00AM	Process Upsets and Mitigations <i>Ron Gillenardo, Jacobs (Gresham WWTP)</i>	15 8:00AM	O&M Staff Support and Migration of CWS's Asset Management System <i>John Nice & Tonya Zinzer, Clean Water Services</i>
1 8:15 AM	KEYNOTE Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> RANDALL GYMNASIUM	9 9:05AM	Benefits and Challenges of Co- Thickening <i>Jacob Corum, Jacobs (Gresham WWTP)</i>	16 9:05AM	Strategic Asset Management at the City of Vancouver <i>Elaine Huber, City of Vancouver</i>
2 9:30 AM	Drones and 3D Scanning <i>Vince Eggleston, Clean Water Services</i>	10 10:20AM	Lab Session 1 - Interactive Activated Sludge Lab <i>Dan Strong, Clackamas WES</i>	17 10:20AM	Lessons Learned Repairing the Inverness Forcemain <i>Kelly Wood, Portland BES</i>
3 10:35AM	Rare Earth used for Ultra- Low Phosphorus Levels <i>Eric Roundy, Keller Associates</i>	11 11:25AM	Lab Session 2 - Interactive Activated Sludge Lab <i>Dan Strong, Clackamas WES</i>	18 11:25AM	Portland's Approach to Pump Station Assets and Investments <i>Mike Szwaya, Portland BES</i>
4 12:35PM	Instrumentation for Wastewater Process Control <i>Ben Barker, YSI</i>	12 1:25PM	No Session	19 1:25PM	Wet Weather Operations of WWTP <i>Rob George and Kyle Stephens, Portland BES</i>
5 1:40PM	PLCs 101 <i>Joel Borchers, Clean Water Services</i>	13 2:30PM	State Point Analysis <i>Rick Kelly, Brown and Caldwell</i>	20 2:30PM	Wastewater Field Operations Risk Register <i>Paul Ortiz, Clean Water Services</i>
6 2:55PM	Remote Telemetry Units (RTUs) 101 - Mission Control <i>Tim Owens, Correct Equipment</i>	14 4:00	Nutrient Removal <i>Rick Kelly, Brown and Caldwell</i>	21 3:45PM	No Session
7 4:00PM	Improving Lift Station Operations - Flygt Concertor <i>Alden Meade, Xylem</i>				

Technology–Activated Sludge–Asset Management Session Descriptions		
TUESDAY - MARCH 24, 2020 – Technology		
	7:00-8:00AM	REGISTRATION/COFFEE AND DONUTS -- Fireside Lounge
	8:00-8:15AM	Opening announcements
#1	8:15-9:15AM	Addressing PFAS in Oregon <i>Oregon Department of Environmental Quality</i> Poly and Per Fluoro Alkyl Substances (PFAS) are used for foams, firefighting, and water/stain repellants. These compounds (which typically end up in biosolids) are ubiquitous and found to be persistent, bioaccumulative, and toxic. ORDEQ will present the issues associated with these compounds and the steps taken to control them.
#2	9:30-10:30AM	Drones and 3D Scanning <i>Vince Eggleston, Clean Water Services</i> This classes discusses how CWS uses drone technology and 3D scanning to improve the efficiency of design, construction, operations, maintenance, and creation of Record Drawings.
#3	10:35-11:35AM	Rare Earth used for Ultra-Low Phosphorus Levels <i>Eric Roundy, Keller Associates</i> Low-level phosphorus effluent requirements are becoming a reality for many communities. Star Sewer & Water District's (SSWD) effluent discharge permit will soon require a seasonal monthly total phosphorus limit of 0.07 mg/L (as P). In preparation for this limit, SSWD investigated a number of alternatives. This presentation will focus on the results of the pilot tests, which included chemical phosphorus removal using a rare earth solution.

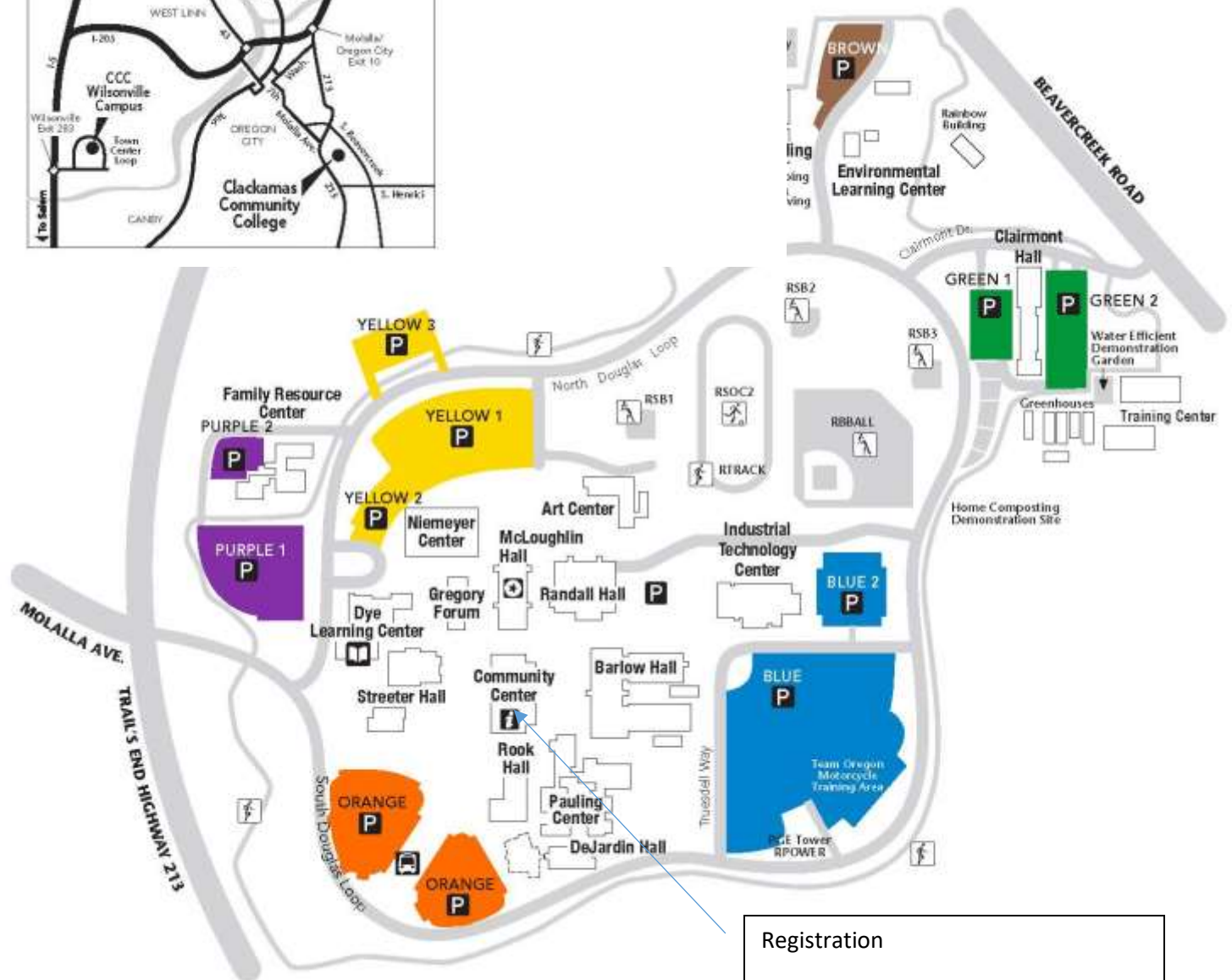
#4	12:35-1:35PM	Instrumentation for Wastewater Process Control <i>Ben Barker, YSI</i> Online instrumentation in wastewater is becoming necessary for the operation of WRRF's. The continuous data from sensors, such as DO, ammonium, nitrate, and TSS, can be utilized to control different processes throughout the wastewater process. Process control can allow operators to run their plant as efficiently as possible.
#5	1:40-2:40PM	PLCs 101 <i>Joel Borchers, Clean Water Services</i> The PLC 101 course will cover the following: The origins of the PLC, PLC Components, Types of Inputs and Outputs, Software used to program PLCs, Ladder logic basics, Contacts/coils/counters/times, AND/OR/NOT Conditions
#6	2:55-3:55PM	Remote Telemetry Units (RTUs) 101 - Mission Control <i>Tim Owens, Correct Equipment</i> Many agencies have standardized pump station alarms and call-outs using the Mission Control System. This system using cellular service to perform its duties. This presentation will discuss RTU basics and then dive into case studies using the Mission Control System
#7	4:00-5:00PM	Improving Lift Station Operations - Flygt Concertor <i>Alden Meade, Xylem</i> Flygt has developed a good solution for trouble free pumping through innovation and optimizing the pumps hydraulics, motor, integrated drive, and control to meet the challenges of today's modern wastewater pumping
WEDNESDAY--MARCH 25, 2020 – Activated Sludge		
#8	8:00-9:00AM	Process Upsets and Mitigations <i>Ron Gillenardo, Jacobs (Gresham WWTP)</i> Real world discussion of potential and process and mechanical upsets at both fixed film and activated sludge wastewater facilities. We will review some actual case studies involving plant upsets and operational responses, both effective and ineffective. Will include an interactive discussion about what operators can do to improve responses to these types of challenges.
#9	9:05-10:05AM	Benefits and Challenges of Co-Thickening <i>Jacob Corum, Jacobs (Gresham WWTP)</i> Discussion of case study of co-thickening at the Gresham Wastewater Treatment Plant over the course of two winters. Focus will be placed on operational challenges faced regarding digester solids loading, inadequate grease removal, and thickening over gravity belts.
#10	10:20-11:20AM	Lab Session 1 - Interactive Activated Sludge Lab <i>Dan Strong, Clackamas WES</i> Learn basic lab tests for conventional activated sludge operational control. Focus will be on settleometer, oxygen uptake, and solids analyses. Data from the tests will be input into Excel for analysis to make operational decisions.
#11	11:25-12:25PM	Lab Session 2 - Interactive Activated Sludge Lab <i>Dan Strong, Clackamas WES</i> Learn basic lab tests for conventional activated sludge operational control. Focus will be on settleometer, oxygen uptake, and solids analyses. Data from the tests will be input into Excel for analysis to make operational decisions.
#12	1:25-2:25PM	No Session
#13	2:30-3:30PM	State Point Analysis <i>Rick Kelly, Brown and Caldwell</i> This presentation will cover high-level concepts on design and operation of secondary clarifiers and the usefulness of the state point analysis a state point plot, evaluate operating conditions using the state point tool, and the limitations of the tool.

#14	4:00-5:00PM	Nutrient Removal <i>Rick Kelly, Brown and Caldwell</i> This presentation will cover the basics of biological nitrification, denitrification, and biological phosphorus removal, including the conditions required in the activated sludge basins to promote growth of these organisms. It will also cover common configurations for nutrient removal and the typical of limits of treatment for each configuration.
THURSDAY-MARCH 26, 2020 – Asset Management		
#15	8:00-9:00AM	O&M Staff Support and Migration of CWS's Asset Management System <i>John Nice & Tonya Zinzer, Clean Water Services</i> Clean Water Services (CWS) has been managing wastewater assets using TabWare for 20+ years. Recognizing new software platforms have entered the market than can improve the user experience and support asset management goals, CWS has embarked on migrating to Lucity by Spring 2020. The focus is to share how CWS has utilized internal resources to manage and implement the migration, and provided a focus for O&M staff to contribute to the development of the program.
#16	9:05-10:05AM	Strategic Asset Management at the City of Vancouver <i>Elaine Huber, City of Vancouver</i> This presentation covers Vancouver's story about how our growth and the economy led to the 2012 creation of our asset management program. Our program covers all public work assets (including wastewater assets) and gives ideas about how to promote/build asset management approaches.
#17	10:20-11:20AM	Lessons Learned Repairing the Inverness Forcemain <i>Kelly Wood, Portland BES</i> Dual forcemains cross the Columbia Slough mounted under a pedestrian bridge. When the 30-inch forcemain failed and leaked into the Slough, flow was temporarily transferred to the parallel 20-inch forcemain. This presentation is on lessons learned to repair the forcemain.
#18	11:25-12:25PM	Portland's Approach to Pump Station Assets and Investments <i>Mike Szwaya, Portland BES</i> The City of Portland operates 97 pump stations, which includes thousands of assets. The Pump Station Improvement Plan had been in place to prioritize spending. However, this process was manually executed and heavily rooted in institutional knowledge. BES partnered with Water Systems Consulting to re-envision this approach to pump station asset management. This presentation reviews this approach.
#19	1:25-2:25PM	Wet Weather Operations of WWTP <i>Rob George and Kyle Stephens, Portland BES</i> Managing sewage flows resulting from wet weather events presents numerous challenges at wastewater treatment plants (WWTPs). It involves the integration of planning, design, operation, and maintenance of not only the treatment system but the collection system as well. Find out how City of Portland BES handles wet weather operations.
#20	2:30-3:30PM	Wastewater Field Operations Risk Register <i>Paul Ortiz, Clean Water Services</i> In this presentation, we will be discussing a few key asset management elements consisting of the asset register, state of the asset, level of service and the risk register. We will also go into detail about a typical asset management software tools. Finally, we will discuss some asset management documents that you can use to get started on a functional program.
#21	3:45-4:45PM	No Session

How to Get to Campus



**Clackamas Community College,
Oregon City Campus**
503-594-6000
19600 Molalla Ave.
Oregon City, OR 97045



Registration
Fireside Lounge
Community Center