ORWEF WES: June 14 to 16, 2022

This is the short school planning booklet submitted to DEQ, from their records.

[redacted]

Water Environment School
June 14-16th 2022
Collection Systems: Operations & Maintenance, Safety, Asset Management

TUESDAY -	**June 14**		
	7:30-7:45am	Event Opens: Q&A, Getting Started	
	7:45-8:00am	Opening Announcements	
#1	**8:00-9:00am**	**Title:**	Safety Concerns From the Influent to the Effluent of a Wastewater Treatment Plant
		Presenter:	Russ Reasoner, Sr. IH/Randy Westmoreland
	Moderators:	**Company/Organization:**	Russ Reasoner, Currently Senior Industrial Hygienist for Oregon OSHA with 30 + years workir
1		**Brief Description:**	
2			
	9:00-9:10am	**Break**	
#2	**9:10-10:10am**	**Title:**	Utility Locating 101
		Presenter:	Geoff Robinson
	Moderators:	**Company/Organization:**	Cimco PNW
1	**Hunter BD**	**Brief Description:**	This course will cover the challenges of locating underground utilities, common location techniques, steps to build a comprehensive locating system, and common dos and don'ts of utility locating.
2			Bio: Geoff Robinson has over 25 years experience in the water-related products industry.
	10:10-10:20am	**Break**	
#3	**10:20-11:20am**	**Title:**	Collections Plugging Solutions
		Presenter:	Rich Owens
	Moderators:	**Company/Organization:**	Owens Pump
1	**Hunter BD**	**Brief Description:**	What types of items are being found in wastewater collections, and what types of pumps are available to prevent collections plugs. We discuss the advantages and disadvantages of each design, and concept.
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	11:20-11:30am	**Break**	
#4	**11:30-12:30pm**	**Title:**	Easements / Access Rights for Utilities
		Presenter:	Sarah Liljefelt
	Moderators:	**Company/Organization:**	Schroeder Law Offices, P.C.
1		**Brief Description:**	Learn best practices for obtaining and confirming access rights and the scope of such access rights for repairs, removal of access barriers, and more.
2			Bio: Sarah Liljefelt is an attorney whose areas of practice include: water rights due diligence review, permitting, extensions, transfers, mitigation, and cancellation; water-related real property issues, including easements, licenses, right-of-ways, and well share agreements; real property disputes, including prescription, adverse possession, and condemnation; public records, meetings, and contracting compliance; water quality and wetlands regulation compliance; administrative adjudications, judicial review of agency orders, and state and federal civil litigation and appeals.
	12:30-1:00pm	**Lunch**	
#5	**1:00-2:00pm**	**Title:**	Corroded Manhole Assessment Rehabilitation Design and Construction
		Presenter:	Neil Jenkins, P.E. and Chris Kossow
	Moderators:	**Company/Organization:**	Eagle Sewer District
1	**Hunter BD**	**Brief Description:**	Concrete manholes should have more structural strength than peanut butter, but PB-consistency concrete is exactly what Eagle Sewer District found as they conducted their periodic inspection of one section of collection system manholes. The culprit was found to be hydrogen sulfide corrosion from two nearby forcemain discharges. These forcemains, coupled with a very steep sloped pipe (up to 8 percent) down a hillside farther down the main were enough to release H2S that corroded the manholes faster than expected. Compounding the problem was the location of this main, through a high-end neighborhood and adjacent to a golf course. The groundwater up on the hill was not a factor, but the section at the bottom of the hill was in nearly 10-feet of groundwater. The manholes were assessed first visually and then with a scrape test. From the ground, the 15 to 18-foot deep manholes appeared to be in good to fair condition with smooth gray concrete with little corrosion until a scape test was performed and the softened concrete sluffed from the wall like tooth paste or soft plaster. The downstream section of the system yielded less than 1-inch of concrete loss. As we worked upstream to the base of the hill and closer to the pump station discharges, up to almost 2-inches was discovered. Next to the pump station discharge, 3 inches of the 5-inch thick manhole wall was missing. In addition to the condition assessment approach, this presentation will discuss the manhole rehabilitation methods that were considered. These include manhole replacement, liners, inserts, structural coating, and coatings for corrosion protection. The final design that resulted and the ultimate rehabilitation project will be presented. Lessons learned that will be shared include how to complete rehabilitation technologies and coordination with neighbors and interested agencies.
2			Bio: Mr. Jenkins holds a bachelor's degree in Civil and Environmental Engineering and a master's degree in Civil Engineering. He is a licensed professional engineer in Idaho. He is an accomplished wastewater engineering project manager. During his private sector career working for a leading engineering firm, he delivered a wide variety of studies, plans and capital projects for many clients throughout Idaho. As General Manager of Eagle Sewer District, Mr. Jenkins leads the District under the direction of a five member board. He sets the long term vision for the District while supervising day-to-day administration and operations. Chris Kossow Mr. Kossow is the Assistant Operations Manager at Eagle Sewer District. He is a seasoned collection system manager and plant operator who holds both collection system and wastewater treatment licenses. He coordinates the collection system assessment, cleaning, and maintenance activities for the District. He also leads the wastewater operations team for the District.
	2:00-2:10pm	**Break**	
#6	**2:10-3:10pm**	**Title:**	Implementation of Telemetered Water Quality Sensors in the Sanitary Collection System
		Presenter:	Scott Mansell, Ph.D.
	Moderators:	**Company/Organization:**	Clean Water Services
1		**Brief Description:**	Clean Water Services has been developing telemetered, continuous water quality sensing network for the sanitary collection system in order to help protect the WRRF from harmful discharges. The challenges of developing such a network in such a difficult environment are considerable, but over the last 4 years CWS has been able to develop the technology, methods, and practices to overcome them. CWS is now moving out of the pilot phase into the full implementation phase and has already been successful in tracking down and eliminating two long-standing sources of upsets to the WRRFs. In this talk, CWS will discuss our path to the current state and our vision for the near and long-term future.
2			Bio: Scott Mansell is the Senior Engineer in the Research and Innovation Department at Clean Water Services where he's been since 2017. Scott leads three main areas of research related to advanced sensing, trace organics and emerging contaminants, and advanced modeling. Scott earned a PhD in Environmental Engineering from UC Berkeley in 2012 and has worked in both the private and public sectors since.
	3:10-3:20pm	**Break**	
#7	**3:20-4:20pm**	**Title:**	Assessment of Critical Dependencies for Rapid Disaster Recovery
		Presenter:	Wayne Gresh
	Moderators:	**Company/Organization:**	Carollo Engineers
1		**Brief Description:**	The Metropolitan Wastewater Management Commission assessed performance of wastewater conveyance and treatment facilities for two catastrophic natural disasters: the Cascadia Subduction Zone seismic event (magnitude 9.0 to 9.2) and catastrophic flood event adjusted to reflect exacerbations from climate change. Performance was assessed with respect to achieving post disaster recovery goals set forth in the Oregon Resiliency Plan. MWMC identified and assessed critical dependencies that could substantially impact their ability to respond and recover from the natural disasters. The collaborative effort with staff identified actions that would help MWMC prepare for any disaster event and minimize the potential for cascading failures.
2			Bio: Wayne Gresh is a project manager for Carollo Engineers.
	4:20-4:30pm	**Closing Remarks/Daily Wrap Up**	
WEDNESD	**06/15/2022**		
	7:30-7:45am	Event Opens: Q&A, Getting Started	
	7:45-8:00am	Opening Announcements	
#8	**8:00-9:00am**	**Title:**	Updates on the War Against Flushable Wipes
		Presenter:	Frank Dick, Wastewater Engineering Supervisor
	Moderators:	**Company/Organization:**	City of Vancouver, WA
1		**Brief Description:**	This presentation will provide an update to last year's presentation on work by utility representatives and manufacturers to get state wipes labeling legislation passed. We will identify wastewater system issues with flushed wipes, and hear about working being done on the local, national and international level to address wipes through laws and policy.
2			
	9:00-9:10am	**Break**	
#9	**9:10-10:10am**	**Title:**	Joining Forces in the Fight Against I/I
		Presenter:	Jessica Rinner, P.E.
	Moderators:	**Company/Organization:**	Water Environment Services

1		**Brief Description:**	Clackamas Water Environment Services (WES) completed a collection system master plan (CSMP) in 2019. One of the findings of the CSMP is that it is more cost effective system wide over the next 20 years to reduce I/I in 19 key basins rather than increase the conveyance and treatment capacity of the system to accommodate the extraneous wet weather flows. The collection system is comprised of multiple jurisdictions or member communities as well as WES owned infrastructure. Every jurisdiction contains a basin in which it was found to be more cost effective to reduce I/I rather than increase the downstream system capacity. WES and the City of Gladstone (City) both have jurisdiction over portions of the collection system within the 19 key basins, and have immediate capacity needs to reduce the I/I. The good working relationship between WES and the City made it possible for the two entities to establish an IGA and enter into a contract with a consulting engineering firm to address the I/I in both jurisdictions simultaneously. The consulting contract will identify the sources of the I/I and design rehabilitation projects to remove it. The joint project provides efficiency and cost savings to both of the partner entities. Project management costs are reduced since there is only one project not two. There is economy of scale and reduced mobilization costs when combining the field investigation activities. There are cost savings in the designs when applying the same standards across multiple sets of construction documents. These are just a few of the financial benefits of working together for a common goal. The I/I identification activities were completed in summer of 2021. WES has begun addressing both the manholes and private sources of I/I identified during the investigations. The City has begun the process of bringing an engineer on board to design the rehabilitation necessary to address the sources of I/I identified in their system. It is anticipated upon completion of the designs each partner will bid out their own construction projects.
2			Bio: Jessica Rinner is a licensed civil engineer in Massachusetts and Oregon with over 25 years of experience focused on sanitary sewer systems. She has worked for both consulting firms and municipalities over the years. Jessica greatly enjoys working for municipalities, being the "owner" of the system, and working closely with the operations and maintenance staff to ensure their sewer system in in good condition and can effectively protect the health of the public and the environment.
	10:10-10:20am	**Break**	
#10	**10:20-11:20am**	**Title:**	Modern Tools for Condition Assessments in Collection Systems
		Presenter:	Michelle Beason, P.E.
	Moderators:	**Company/Organization:**	National Plant Services, Inc.
1		**Brief Description:**	This presentation will discuss new methods of conducting condition assessments in collection systems, including CCTV, multi sensor inspections using laser and sonar, manhole cameras including 360 degree IBAKcameras, smoke testing, time lapse manhole cameras.
2			Bio: Michelle Beason is an industry leader in the maintenance and trenchless rehabilitation of sewer, water, and storm assets. She has extensive professional engineering and management experience spanning 29 years in Public Works including: Asset Management practices, planning and design of water and wastewater facilities, pipeline and facility inspection and maintenance, project management, engineering consulting, and construction of trenchless rehabilitation solutions.
	11:20-11:30am	**Break**	
#11	**11:30-12:30pm**	**Title:**	Sanitary Sewer Lateral Inspection and Lining
		Presenter:	Michelle Beason, P.E.
	Moderators:	**Company/Organization:**	National Plant Services, Inc.
1		**Brief Description:**	The Environmental Protection Agency estimates that private lateral sewer lines account for 75% of the infiltration of groundwater into the nation's main sewer lines. These leaking laterals cause treatment plants to treat a higher-than-anticipated volume of water, resulting in higher treatment costs for the sanitary district, and higher customer fees. Eliminating the extra cost of treating this infiltration will more than compensate for the investment needed to inspect and repair laterals. This presentation will discuss methods for inspecting and repairing laterals, including CCTV inspection, cleaning and root cutting, main-to-house (MTH) lining, connection repair, and sealing with chemical grout.
2			Bio: Michelle Beason is an industry leader in the maintenance and trenchless rehabilitation of sewer, water, and storm assets. She has extensive professional engineering and management experience spanning 29 years in Public Works including: Asset Management practices, planning and design of water and wastewater facilities, pipeline and facility inspection and maintenance, project management, engineering consulting, and construction of trenchless rehabilitation solutions.
	12:30-1:00pm	**Lunch**	
#12	**1:00-2:00pm**	**Title:**	**Odor Control in Collection Systems**
		Presenter:	John Sawyer
	Moderators:	**Company/Organization:**	BioAir Solutions
1		**Brief Description:**	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.
2			Bio: John Sawyer has more than 15 years' experience in the water-wastewater industry.
	2:00-2:10pm	**Break**	
#13	**2:10-3:10pm**	**Title:**	**DAS Screens - An Alternative to Grinders and Chopper Pumps**
		Presenter:	Steve Aiken
	Moderators:	**Company/Organization:**	Duperon Corporation
1		**Brief Description:**	"Flushable" wipes are a big problem in collection systems and headworks. The Dual Auger System uses existing technologies to capture and remove rags and other pump-fouling debris while keeping organics in the collection system. This presentation will provide an overview of how the system works and how it can be applied.
2			Bio: Steve Aiken has more than 40 years experience as a wastewater operator and now serves as a regional sales manager for Duperon.
	3:10-3:20pm	**Break**	
#14	**3:20-4:20pm**	**Title:**	**Roadside Emergencies & Hazard Awareness**
		Presenter:	Dustin Ross
	Moderators:	**Company/Organization:**	ODOT
1		**Brief Description:**	Public Workers are on the roads all day, it's just a matter of time before you could be first on scene with one of these hazards, will you know what to do? This session will cover the awareness of the many unexpected hazards you could come across while working on our roadways; motor vehicle crashes, Haz-mat spills, suspicious persons, crime scenes, etc.
2	**Hunter BD**		Bio: Dustin Ross is a training specialist for ODOT.
	4:20-4:30pm	**Closing Remarks/Daily Wrap Up**	
THURSDAY	**June 16**		
	7:30-7:45am	Event Opens: Q&A, Getting Started	
	7:45-8:00am	Opening Announcements	
#15	**8:00-9:00am**	**Title:**	Introduction to Your DEQ Online
		Presenter:	Jessica Lorenz, Your DEQ Online Trainer and Margaret Gardener, Your DEQ Online Change Manager
	Moderators:	**Brief Description:**	*Over the next two years, Your DEQ Online will bring most of DEQ's application, payment and r*
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	9:00-9:10am	**Break**	
#16	**9:10-10:10am**	**Title:**	Air Mitigation in Fluid Conveyance Systems (Air Valves)
		Presenter:	Geoff Robinson
	Moderators:	**Company/Organization:**	Cimco PNW
1		**Brief Description:**	This course will cover why, where, and when air valves are needed in collection systems. We will discuss how to select appropriate air valves to protect the integrity of a new or existing collection system.
2			Bio: Geoff Robinson has over 25 years experience in the water-related products industry.
	10:10-10:20am	**Break**	
#17	**10:20-11:20am**	**Title:**	Evaluating Indicators of Anaerobic Digestion Stability
		Presenter:	Ornella Sosa-Hernandez
	Moderators:	**Company/Organization:**	CWS
1	**Hunter BD**	**Brief Description:**	Anaerobic digestion is a very robust process as long as feed composition, feed rates, and stable operating conditions are maintained and reasonable volatile solids reduction and gas productions are obtained. However, digesters are usually operated as "black boxes" when the ability to make visual inspections is limited and only grab samples and laboratory analyses can indicate the potential for upset conditions. This presentation will include: -An overview of the operational parameters that are monitored at the Clean Water Services facilities to help identify conditions that cause digestion instability. -A summary of our previous and ongoing efforts to improve knowledge of this process, its limitations and the impacts of the co-digestion program. This includes the current development and implementation of a bench scale test that can be used routinely to generate indicators of digestion health and performance.
2			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.
	11:20-11:30am	**Break**	
#18	**11:30-12:30pm**	**Title:**	**The Lure of Depth-Only Measurement for I&I Assessment**
		Presenter:	Jay Boyd
	Moderators:	**Company/Organization:**	ADS Environmental Services

1	**Hunter BD**	**Brief Description:**	More than 40 years ago, area/velocity (A/V) meters brought a new way to measure collection system flow. Over the past few years, depth-only monitors have been introduced, promoted as a less expensive alternative to A/V meters. As their name implies, depth-only meters measure depth and not velocity. In order to satisfy the equation Q=VA, these meters use Manning's equation or other self-described proprietary algorithms for velocity (V). This presentation discusses a series of studies that compared depth-only versus A/V meters. The results call into question the effectiveness of depth-only meters' usage for assessing I/I given the potential for significant and sometimes unpredictable error. More impactfully, misleading data may drive utilities to incorrectly conclude which basins are a priority for infrastructure investments. While the initial lure of depth-only meters promises to save thousands during the I/I assessment phase, an unnecessary upgrade in the wrong basin puts hundreds of thousands, possibly millions of dollars at risk.
2			Bio: Jay Boyd has 20-plus-years' experience in the water-wastewater industry.
	12:30-1:00pm	**Lunch**	
#19	**1:00-2:00pm**	**Title:**	Sample Collection & Sampling Plans - Best Practices
		Presenter:	Erika Schwender
	Moderators:	**Company/Organization:**	Professional Training Association
1		**Brief Description:**	Analytical data produced by any laboratory is only defensible if proper sample collection, preservation, and storage procedures are applied. The first link in the long chain of a sample's life is the sample collection site. The determination of where and when to collect a sample is as important as the type of sample, proper sample preservation and storage, or the analysis itself. Incorrect or inconsistent sample collection locations can lead to misleading conclusions and invalidated regulatory samples or investigatory studies. This is why developing a sample collection plan is essential for any compliance related monitoring, exploratory study, or investigation. Once we are confident we collected the appropriate site and time for our sample collection it is essential to consistently follow the correct sample collection, preservation, and storage procedures to assure the laboratory receives a sample that has been properly prepared for the requested analysis.
2		**Brief Description:**	
	2:00-2:10pm	**Break**	
#20	**2:10-3:10pm**	**Title:**	Sample Collection & Sampling Plans - Best Practices (continued)
		Presenter:	Erika Schwender
	Moderators:	**Company/Organization:**	Professional Training Association
1		**Brief Description:**	Continuation of #19. See description above.
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	3:10-3:20pm	**Break**	
#21	**3:20-4:20pm**	**Title:**	Sample Collection & Sampling Plans - Best Practices (continued)
		Presenter:	Erika Schwender
	Moderators:	**Company/Organization:**	Professional Training Association
1		**Brief Description:**	Continuation of #19. See description above.
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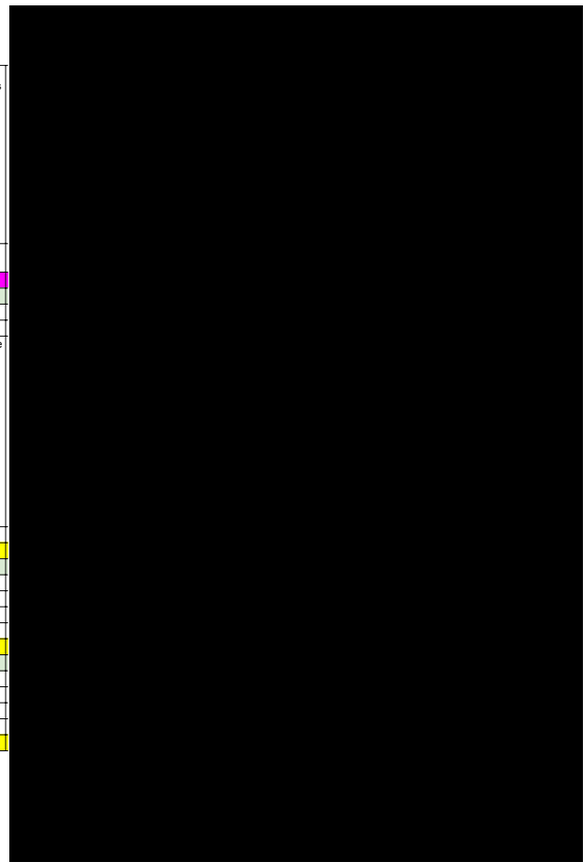
	4:20-4:30pm	**Closing Remarks/Daily Wrap Up**	



Water Environment School [redacted]

June 14-16th 2022

Wastewater Operations: Basics & Beyond, Safety, Asset Management/ Technology/ Activated Sludge

TUESDAY -	**June 14**		
	7:30-7:45am	Event Opens: Q&A, Getting Started	
	7:45-8:00am	Opening Announcements	
#1	**8:00-9:00am**	**Title:**	**Safety Concerns From the Influent to the Effluent of a Wastewater Treatment Plant**
		Presenter:	Russ Reasoner, Sr. IH/Randy Westmoreland
	Moderators:	**Company/Organization:**	
1		**Brief Description:**	Russ Reasoner, Currently Senior Industrial Hygienist for Oregon OSHA with 30 + years workin
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	9:00-9:10am	**Break**	
#2	**9:10-10:10am**	**Title: Adaptive Mixing**	**Variable Speed Wastewater Pumping**
		Presenter:	Alden Meade
	Moderators:	**Company/Organization:**	Xylem
1		**Brief Description:**	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.
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	10:10-10:20am	**Break**	
#3	**10:20-11:20am**	**Title:**	Reduce Operating Costs with Energy Efficient Improvements
		Presenter:	Kelson Redding
	Moderators:	**Company/Organization:**	**Energy 350**
1	**Hunter BD**	**Brief Description:**	This presentation will highlight the biggest energy users common in wastewater treatment plants and present low-cost ideas to help reduce operating costs.
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	11:20-11:30am	**Break**	
#4	**11:30-12:30pm**	**Title:**	Positive Displacement Pump Choices for Wastewater
		Presenter:	Rich Owens
	Moderators:	**Company/Organization:**	Owens Pump
1		**Brief Description:**	There are many different positive displacement sludge pumping solutions out there, how do each of them work? Learn the differences between progressing cavity, rotary lobe, double disc, and peristaltic hose pumps in different applications throughout the wastewater treatment process.
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	12:30-1:00pm	**Lunch**	
#5	**1:00-2:00pm**	**Title:**	Renewable Natural Gas Production development within Metropolitan Wastewater Management Commission (MWMC)"
		Presenter:	Mark Van Eeckhout
	Moderators:	**Company/Organization:**	Metropolitan Wastewater Management Commission /City of Springfield
1	**Hunter BD**	**Brief Description:**	The Metropolitan Wastewater Management Commission (MWMC) Eugene/Springfield Water Pollution Control Facility (WPCF) in Eugene, OR is a 34 MGD plant that generates 400,000 to 500,000 cubic feet per day of biogas from 4 anaerobic digesters. The MWMC undertook a capital project over the past several years to build a Renewable Natural Gas (RNG) Facility that can process the Biogas into RNG for injection into the local Northwest Natural (NWN) Gas transmission system. The project was commissioned in December 2021, and was the first RNG facility at a Publicly Owned Treatment Works to come online in the state of Oregon. This presentation will focus on the efforts taken by the MWMC and their partners to plan design and construct this facility and will have discussions about ongoing operations lessons learned.
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	2:00-2:10pm	**Break**	
#6	**2:10-3:10pm**	**Title:**	Wastewater MBR Basics
		Presenter:	Blake Raines
	Moderators:	**Company/Organization:**	Clackamas Water Environment Services
1		**Brief Description:**	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
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	3:10-3:20pm	**Break**	
#7	**3:20-4:20pm**	**Title:**	The Fundamentals of Electrochemistry
		Presenter:	Mark McElroy
	Moderators:	**Company/Organization:**	Thermo Fisher Scientific
1		**Brief Description:**	The Thermo Scientific pH Seminar focuses on the essentials of practical pH measurement. pH is one of the most common and routine types of laboratory analysis for wastewater, but in order to achieve good precision and accuracy, proper technique must be followed. Each component of the pH system will be discussed with only a minimum of time spent on theory: Electrodes,Calibration, Care and Maintenance, Temperature and Troubleshooting.
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	4:20-4:30pm	**Closing Remarks/Daily Wrap Up**	
WEDNESDA	**06/15/2022**		
	7:30-7:45am	Event Opens: Q&A, Getting Started	
	7:45-8:00am	Opening Announcements	
#8	**8:00-9:00am**	**Title:**	**Updates on the War Against Flushable Wipes**
		Presenter:	Frank Dick
	Moderators:	**Company/Organization:**	City of Vancouver Public Works
1		**Brief Description:**	
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	9:00-9:10am	**Break**	
#9	**9:10-10:10am**	**Title: Pumps**	**Adaptive Mixing and Better Biological Nutrient Removal**
		Presenter:	Alden Meade
	Moderators:	**Company/Organization:**	Xylem
1		**Brief Description:**	This presentation will give attendees a better understanding of BNR and the role that mixing pays in its effectiveness. In addition they will learn different ways to monitor BNR processes and will have suggestion on control options that they can attempt at their own facilities.
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	10:10-10:20am	**Break**	
#10	**10:20-11:20am**	**Title:**	Aeration; why, how, and new O&M realities
		Presenter:	Randy Chan
	Moderators:	**Company/Organization:**	
1		**Brief Description:**	Aeration; Why, How, and New O&M Realities – Aeration is more than operating your duty blowers. In Part 1, we'll review the relationship to process operating conditions and performance, impacts of maintenance on diffuser performance and blower capacity, and DIY aeration opportunities to improve process performance and reduce the single largest use of energy in your plant
2			Randy currently supports the industry as an independent knowledge resource. My background includes over 40 years in the industry with work experience in refinery wastewater treatment with Sohio and British Petroleum, aeration system product design and application with Environmental Dynamics International, and next-generation digital twinning with BioChem Technology. I also serve on the ASCE Oxygen Transfer Standards Committee and Board for a local sewer district. I am a retired registered engineer and have a BSCE from Union College and a MBA from Case Western Reserve University.
	11:20-11:30am	**Break**	
#11	**11:30-12:30pm**	**Title:**	(cont.) Our Future; a pathway forward, next-generation controls
		Presenter:	Randy Chan
	Moderators:	**Company/Organization:**	
1		**Brief Description:**	Our Future; A Pathway Forward and Next Generation Controls – The focus of the industry is expanding beyond oxygen demand and toxicity. New objectives including nutrients and sustainability, inclusive of energy, water, and financial, are all in play. In Part 2, we'll review differences in control strategies and how next generation controls work in concert with management and staff to optimize the physical plant, operations, and maintenance, all to your utility's specific objectives and needs.

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	12:30-1:00pm	Lunch		
#12	1:00-2:00pm	Title:	Overview of Lab Documentation	
		Presenter:	Lori Zboralski	P
	Moderators:	Company/Organization:	Professional Training Association	E
1		Brief Description:	As a water or wastewater operator you know that documentation is becoming more and more important. At times it feels like we can't do ANYTHING anymore without having to record or log it somewhere. On top of that, sometimes it feels like every time we talk to someone about what we are required to document we get a different answer. This workshop explains why all this paperwork is necessary and how you can use this information to make your life easier down the road. Sooner or later your operation will be confronted with an audit by the regulators, has to troubleshoot the treatment process or a piece of equipment, or renew the discharge permit. Good and thorough information will improve your organization's compliance and make those situations less stressful and easier to navigate. This workshop will point out what and how information needs to be documented to stay compliant with lab accreditation requirements and produce defensible and reliable lab data. We will discuss internal and external chain of custodies (COCs), benchsheets, logs (temperature, chemical, reagent, maintenance, etc.), quality Control (QC) logs and charts, and standard operating procedures (SOPs).	N
2				C
	2:00-2:10pm	Break		
#13	2:10-3:10pm	Title:	Overview of Lab Documentation (continued)	
		Presenter:	Lori Zboralski	P
	Moderators:	Company/Organization:	Professional Training Association	E
1		Brief Description:	Continuation of #12. See description above.	N
2				C
	3:10-3:20pm	Break		
#14	3:20-4:20pm	Title:	Overview of Lab Documentation (continued)	
		Presenter:	Lori Zboralski	P
	Moderators:	Company/Organization:	Professional Training Association	E
1		Brief Description:	Continuation of #12. See description above.	N
2	Hunter BD			C
	4:20-4:30pm	Closing Remarks/Daily Wrap Up		
THURSDAY	June 16			
	7:30-7:45am	Event Opens: Q&A, Getting Started		
	7:45-8:00am	Opening Announcements		
#15	8:00-9:00am	Title:	Introduction to Your DEQ Online	
		Presenter:	Jessica Lorenz, Your DEQ Online Trainer and Margaret Gardener, Your DEQ Online Change Manager	P
	Moderators:	Brief Description:	Over the next two years, Your DEQ Online will bring most of DEQ's application, payment and reporting processes into one cloud-based platform. This presentation will provide an overview of what to expect for this new platform called Your DEQ Online. There will also be a brief demonstration of the application process and key features of the system.	E
1				N
2				C
	9:00-9:10am	Break		
#16	9:10-10:10am	Title:	**A.D. (Air Driven) Floating Aerators/Mixers**	
		Presenter:	Lewis Titus	P
	Moderators:	Company/Organization:	**TITUS® Industrial Group Inc.**	E
1		Brief Description:	Efficient lagoon aeration and mixing has been a challenge for decades. Applications requiring aeration and mixing span across various markets including municipal water and wastewater, industrial and commercial industries. Some of the most common challenges experienced by these industries include sludge control, odor issues, limited equipment adaptability/versatility, high maintenance costs, cold weather issues, safety, and high operational costs. A.D. (Air Driven) Floating Aerators/Mixers offer many advantages over mechanical floating aerators and bottom diffusers for lagoons, large basins, large tanks, and even large pump stations.	N
2				C
	10:10-10:20am	Break		
#17	10:20-11:20am	Title:	**Wastewater Operator Certification Basics**	
		Presenter:	Kimi Grzyb	P
	Moderators:	Company/Organization:	Oregon DEQ	E
1	Hunter BD	Brief Description:	"DEQ Wastewater Operator Certification Program Information: webpage navigation, the certification process and requirements, applying, renewals/CEUs, and Q&A".	N
2				C
	11:20-11:30am	Break		
#18	11:30-12:30pm	Title:	**Operational Risk Assessment**	
		Presenter:	Mark Walter	P
	Moderators:	Company/Organization:	WATERDUDE Solutions	E
1	Hunter BD	Brief Description:	Developing an approach to operational risk assessment is critical to managing wastewater operations. This training will define an approach to developing a risk matrix for evaluating wastewater systems. Attendees will be instructed on how to define a wastewater system, its level of service, and criticality. Then they will learn how to assign likelihood of operational failure and triggers for taking action. Attendees will participate in completing an operational risk assessment utilizing this approach on a wastewater system. The intent of this training is to inform operators on how system risk can be used to make decisions and communicate system status.	N
2				C
	12:30-1:00pm	Lunch		
#19	1:00-2:00pm	Title:	**Operational Task Planning**	
		Presenter:	Mark Walter	P
	Moderators:	Company/Organization:	**WATERDUDE Solutions**	E
1		Brief Description:	Task planning is a critical element of maintaining wastewater treatment plant operation. Developing a work process that supports effective task planning will help identify and reduce unintended outcomes. This training will introduce attendees to a task planning approach that includes risk assessment and plan development. Attendees will participate in a scenario-based task planning session to gain experience using this approach. The intent of this training is to inform operators on how to manage risk while performing operational tasks.	N
2		Brief Description:		C
	2:00-2:10pm	Break		
#20	2:10-3:10pm	Title:	**"Plan the Work, Work the Plan" Start up of the Tri-City Solids Handling Improvement Project**	
		Presenter:	Jeff Stallard	P
	Moderators:	Company/Organization:	Clackamas Water environment Services	E
1		Brief Description:	In 2015, Clackamas Water Environment Services (WES) kicked off a project to completely overhaul and expand the solids facilities at the Tri-City Water Resources Recovery Facility (TCWRRF). The project constructed a new 1.3 million gallon digester, dewatering facilities and a combined heat and power system. Two existing digesters are also being upgraded. During the project development, WES operations staff was integral in developing the construction constraints included in the construction bid package. To accommodate the constraints identified, the start-up of the project was separated into two phases. Phase 1 of start-up, was completed in December of 2020, included the new digester, centrifuges, polymer systems, boilers, and dewatering feed tank. Phase 2 of the project, was completed in August of 2021, will include making the upgrades to the two existing digesters, addition of a digester feed tank and replacement of the co-generation system. Because digestion facilities must remain online and reliable during construction, significant coordination effort between engineering, operations and construction team members has been required throughout the project. This presentation will provide an overview of the project and the challenges there were being experienced prior to this project, it will cover in detail the approach to planning and coordination between the operations staff, contractor, and engineer during design, construction, and execution of the start-up.	N
2			Jeff Stallard, Supervising Engineer, Clackamas WES. Jeff is a project manager with 21 years of experience spread across the public and private industry, delivering projects in the Pacific Northwest for the last 14 years.	C
	3:10-3:20pm	Break		
#21	3:20-4:20pm	Title:	**Developing a Predictive Wastewater Maintenance Program**	
		Presenter:	John Nice	P
	Moderators:	Company/Organization:	Clean Water Services	E
1		Brief Description:	Predictive Maintenance is a concept which can be applied to optimize asset maintenance plans through early detection of potential failures. The application of predictive maintenance techniques can be beneficial in reducing equipment down time, saving money on repairs and bringing focus to capital planning efforts. This presentation is a guide to help identify how to select assets for a predictive maintenance program and identify techniques that can be applied for those assets. Implementing this type of program helps to make informed repair vs replace decisions and predict the timing of equipment replacements. The goal of creating an effective predictive maintenance program is to mitigate risk on the most critical assets and to avoid costly failures while making your maintenance efforts less reactive and more planned.	N

2				C
	4:20-4:30pm	Closing Remarks/Daily Wrap Up		

[redacted]

Water Environment School

June 14-16th 2022

Source Control/Pollution Prevention: Industrial Pretreatment, Stormwater, Reuse & Biosolids

TUESDAY -	**June 14**			
	7:30-7:45am	Event Opens: Q&A, Getting Started		
	7:45-8:00am	Opening Announcements		
#1	**8:00-9:00am**	**Title:**	Safety Concerns From the Influent to the Effluent of a Wastewater Treatment Plant	
		Presenter:	Russ Reasoner, Sr. IH/Randy Westmoreland	P
	Moderators:	**Company/Organization:**		E
1		**Brief Description:**	Russ Reasoner, Currently Senior Industrial Hygienist for Oregon OSHA with 30 + years working for Oregon OSHA, 25 years as an Industrial Hygienist (IH) Consultant, and 5 years starting out as an IH compliance officer. Graduate with a B.S. in Molecular Biology at the University of Oregon and continued with graduate studies in Industrial and Environmental Toxicology at Portland State University. Randy Westmoreland CSP, CIT, Currently Industrial Hygienist for Oregon OSHA with 14 years in the OSHA programs. Graduate with a B.S. and M.S in Occupational Safety and Health Management from Southeastern Oklahoma State University. Presentation time: 1 hr. for each discipline H, S, & E (total 3 hrs.)	N
2				C
	9:00-9:10am	**Break**		
#2	**9:10-10:10am**	**Title:**	Assessing Water Quality Improvement at the Carli Creek Regional Water Quality Project in Clackamas C	
		Presenter:	Chris Desiderati	
	Moderators:	**Company/Organization:**	Water Environment Services	E
1	**Hunter BD**	**Brief Description:**	Constructed wetlands are innovative, resilient, multi-benefit tools for managing urban stormwater. At the Carli Creek Regional Water Quality Project, learn how pollutant levels across the treatment wetland compare to water quality criteria, how much the wetland reduces pollutant loads, and how pollutant loading relates to environmental variables over time.	N
2				C
	10:10-10:20am	**Break**		
#3	**10:20-11:20am**	**Title:**	**Steigerwald Lake National Wildlife Refuge Restoration Project**	
		Presenter:	Chris Collins	P
	Moderators:	**Company/Organization:**	Estuary Partnership	E
1	**Akiko**	**Brief Description:**	After two years of closure to complete the largest habitat restoration project in the lower Columbia River, Steigerwald Lake National Wildlife Refuge reopened to the public on May 1. Construction began in 2019 to reduce flood risk, reconnect and enhance 965 acres of Columbia River floodplain, and increase recreation opportunities at this popular urban refuge. The project benefits juvenile salmon and steelhead migrating to the ocean by increasing the acreage of accessible Columbia River floodplain habitat between the Bonneville Dam and Willamette River by 19%. It also restored unobstructed access for salmonids and lamprey to the floodplain and Gibbons Creek watershed, created a total of 115 acres of new wetland habitat, and planted 250 acres of riparian habitat with 515,000 native bare roots and cuttings. The $31 million project also reduced flood risk, generated approximately 500 local jobs, and brought in more than $67 million to the local economy. The presentation will provide an overview of the project, its benefits, and its effectiveness monitoring plan.	N
2				C
	11:20-11:30am	**Break**		
#4	**11:30-12:30pm**	**Title:**	Types of health, safety and ergonomic hazards and the hazard controls that are common place in the water/wastewater treatment processes	
		Presenter:	Russ Reasoner, Sr. IH/Randy Westmoreland	P
	Moderators:	**Company/Organization:**	OR-OSHA	E
1		**Brief Description:**	Russ Reasoner, Currently Senior Industrial Hygienist for Oregon OSHA with 30 + years working for Oregon OSHA, 25 years as an Industrial Hygienist (IH) Consultant, and 5 years starting out as an IH compliance officer. Graduate with a B.S. in Molecular Biology at the University of Oregon and continued with graduate studies in Industrial and Environmental Toxicology at Portland State University. Randy Westmoreland CSP, CIT, Currently Industrial Hygienist for Oregon OSHA with 14 years in the OSHA programs. Graduate with a B.S. and M.S in Occupational Safety and Health Management from Southeastern Oklahoma State University. Presentation time: 1 hr. for each discipline H, S, & E (total 3 hrs.)	N
2		OR-OSHA		C
	12:30-1:00pm	**Lunch**		
#5	**1:00-2:00pm**	**Title:**	Options for Industrial Wastewater Treatment / Pretreatment	
		Presenter:	Rich Owens	P
	Moderators:	**Company/Organization:**	Owens Pump	E
1	**Hunter BD**	**Brief Description:**	What are the current and future possible options for industrial wastewater treatment. We will describe what is currently being used, what advantages they have, and their disadvantages. There will also be discussion on upcoming technologies that could replace the current technology	N
2				C
	2:00-2:10pm	**Break**		
#6	**2:10-3:10pm**	**Title:**	Health, safety and ergonomics policies in Wastewater Treatment	
		Presenter:	Russ Reasoner/Randy Westmoreland	P
	Moderators:	**Company/Organization:**	OR-OSHA	E
1		**Brief Description:**	Russ Reasoner, Currently Senior Industrial Hygienist for Oregon OSHA with 30 + years working for Oregon OSHA, 25 years as an Industrial Hygienist (IH) Consultant, and 5 years starting out as an IH compliance officer. Graduate with a B.S. in Molecular Biology at the University of Oregon and continued with graduate studies in Industrial and Environmental Toxicology at Portland State University. Randy Westmoreland CSP, CIT, Currently Industrial Hygienist for Oregon OSHA with 14 years in the OSHA programs. Graduate with a B.S. and M.S in Occupational Safety and Health Management from Southeastern Oklahoma State University. Presentation time: 1 hr. for each discipline H, S, & E (total 3 hrs.)	N
2				C
	3:10-3:20pm	**Break**		
#7	**3:20-4:20pm**	**Title:**	Hydrothermal Processing for Wastewater Solids	C
		Presenter:	James Oyler	
	Moderators:	**Company/Organization:**	President, Genifuel Corporation	E
1		**Brief Description:**	James Oyler is President of Genifuel that is are currently located in Altamonte Springs, Florida. The company speciliazes in Hydrothermal Processing (HTP) that uses temperature and pressure to efficiently convert wet organic matter to biocrude oil and methane gas in less than an hour. Mr. Oyler is the Founder and President of Genifuel Corporation. Formed in 2006, Genifuel provides Hydrothermal Processing systems which eliminate wet organic wastes, especially wastewater solids, by converting them into renewable fuels. Genifuel has recently commissioned a pilot-scale Hydrothermal Processing facility, and is currently in the engineering phase for several wastewater utilities in North America and Europe. Mr. Oyler holds more than twenty patents issued or pending, as well as exclusive licenses to other patents for hydrothermal processing. Earlier, he held senior positions in energy consulting and corporate management leading to twelve years as CEO of a publicly-traded company.	N
2				C
	4:20-4:30pm	**Closing Remarks/Daily Wrap Up**		
WEDNESDAY	**06/15/2022**			
	7:30-7:45am	Event Opens: Q&A, Getting Started		
	7:45-8:00am	Opening Announcements		
#8	**8:00-9:00am**	**Title:**	**Updates on the War Against Flushable Wipes**	
		Presenter:	Frank Dick	P
	Moderators:	**Company/Organization:**	City of Vancouver Public Works	E
1		**Brief Description:**		N
2				C
	9:00-9:10am	**Break**		
#9	**9:10-10:10am**	**Title:**	Understanding the Activated Sludge Process	
		Presenter:	David Stoops	P
	Moderators:	**Company/Organization:**	Professional Training Association	E
1		**Brief Description:**	The activated sludge process utilizes aeration and biological floc composed of microorganisms to treat sanitary and industrial wastewater. This process is applied in a wide variety of systems including conventional activated sludge treatment plants, oxidation ditches, sequencing batch reactors, and package plants. This course is designed to provide you with the fundamental understanding of the processes, components, and microbiology applied in the activated sludge process. The course will: - explain the terminology, treatment conditions, and challenges commonly found in the wastewater industry - discuss the components and equipment commonly used in activated sludge systems and explain their functions - describe the microbiological and chemical processes taking place in the activated sludge treatment process - explore process control parameters commonly monitored in activated sludge operations - examine strategies for operating varies treatment designs and modes applying variations of the conventional activated sludge process - share tips for troubleshooting your treatment system	N
2				C
	10:10-10:20am	**Break**		
#10	**10:20-11:20am**	**Title:**	Understanding the Activated Sludge Process (continued)	
		Presenter:	David Stoops	P
	Moderators:	**Company/Organization:**	Professional Training Association	E
1		**Brief Description:**	Continuation of #9. See description above.	N
2				C
	11:20-11:30am	**Break**		
#11	**11:30-12:30pm**	**Title:**	Understanding the Activated Sludge Process (continued)	
		Presenter:	David Stoops	P
	Moderators:	**Company/Organization:**	Professional Training Association	E
1		**Brief Description:**	Continuation of #9. See description above.	N
2				C
	12:30-1:00pm	**Lunch**		
#12	**1:00-2:00pm**	**Title:**	**Building Support for a Clean Water Future: Learn how to chart a course for continuous improvement with your customers and stakeholders.**	
		Presenter:	Shelly Parini-Runge	P
	Moderators:	**Company/Organization:**	Water Environment Services	E

1			Building Support for a Clean Water Future Background: Clackamas Water Environment Services (WES) provides clean water services to more than 200,000 people within Clackamas County. WES serves seven cities, plus urban and rural unincorporated areas. After the recent consolidation of sewer and surface water districts, WES created a new brand to unify its services around its shared mission to protect public health and the environment, and the region's economic vitality. Issue: The WES regionalized story is complex and often misunderstood. In addition, today's clean water utilities face a broad range of complex challenges, including rising costs and affordability, aging infrastructure, shifting regulatory requirements, enhanced customer expectations, competing stakeholder demands, and climate challenges. In addition, we're invisible. Approach: In 2021, WES planned and delivered a robust community engagement and discovery process called the Clean Water Exchange (Exchange). Participants in the Exchange ranged from stakeholders vested in WES' future, programs, and services to ratepayers with less existing familiarity with us and our services. To steer the process WES developed the following goals: · Strengthen customer and stakeholder understanding, · Create new clean water partnerships and advocates, and · Build trust through enhanced connections. In response to the Exchange four strategic initiatives were created. The strategies were used to develop a Communications and Engagement Roadmap which will help WES chart a course for continuous improvement with its customers and stakeholders with the objective of engendering support for current and future watershed projects and programs. In addition, the Roadmap paints a picture for a more connected and inclusive future with the many diverse stakeholders, communities and people WES serves. Learn how your agency can adapt WES' model to chart a course for continuous improvement with your customers and stakeholders! Learning outcomes include: · How to establish meaningful research and engagement goals that drive results · A review of the various research approaches and methodologies deployed in the WES Clean Water Exchange and how to leverage them for your own use · Advice on how to translate feedback and data into meaningful and measurable goals intentionally designed to enhance stakeholder understanding, create new clean water champions, and build support for future watershed projects and programs
		Brief Description:	
2			Shelly Parini-Runge is a passionate community builder, her career strengths include strategic communications, designing results-driven community engagement initiatives and raising support for critical public infrastructure projects. Her inclusive style provides a practical way to facilitate community-centered conversations that build trust and illuminate the roles that dialogue, social-networks, and leadership play, in creating and navigating sustainable change. Prior to working for Clackamas Water Environment Services in an External Affairs leadership role, Shelly led Clackamas Community College's Advancement and Government Affairs Department for more than a decade. Shelly holds a Bachelor of Arts in Theater and Communications from Arizona State University and a Master of Arts in Organizational Communications from Marylhurst University. Shelly also serves on the Oregon ACWA Education Committee as Vice Chair and recently the WateReuse Pacific Northwest Board of Trustees. Submitted by: Shelly Parini-Runge Clackamas Water Environment Services
	2:00-2:10pm	**Break**	
#13	**2:10-3:10pm**	**Title:**	**Fernhill Wetlands for Tertiary Treatment of Wastewater**
		Presenter:	Leila Barker CWS Fernhill Wetlands
	Moderators:		
		Company/Organization:	Clean Water Services
1		**Brief Description:**	Creating habitat with secondary effluent while meeting NPDES treatment requirements
2			
	3:10-3:20pm	**Break**	
	3:20-4:20pm	**Title:**	
#14			Quality of Biogas Derived from Wastewater Solids and Co-digested Organics – A Characterization Study
		Presenter:	Bhargavi Subramanian
	Moderators:	**Company/Organization:**	Kennedy Jenks
1		**Brief Description:**	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.
2	**Hunter BD**		
	4:20-4:30pm	**Closing Remarks/Daily Wrap Up**	
THURSDAY - June 16			
	7:30-7:45am	Event Opens: Q&A, Getting Started	
	7:45-8:00am	Opening Announcements	
#15	**8:00-9:00am**	**Title:**	Introduction to Your DEQ Online
		Presenter:	Jessica Lorenz, Your DEQ Online Trainer and Margaret Gardener, Your DEQ Online Change Manager
	Moderators:	**Brief Description:**	Over the next two years, Your DEQ Online will bring most of DEQ's application, payment and reporting processes into one cloud-based platform. This presentation will provide an overview of what to expect for this new platform called Your DEQ Online. There will also be a brief demonstration of the application process and key features of the system.
1			
2			
	9:00-9:10am	**Break**	
#16	**9:10-10:10am**	**Title:**	**Wastewater Collections and Treatment ABC Certification Review**
		Presenter:	Matthew LaForce
	Moderators:	**Company/Organization:**	Clackamas Community College
1		**Brief Description:**	OESAC # 9429- Dr. LaForce received his Masters of Science degree in geology and his doctoral degree in soil science working in inorganic environmental chemistry from the University of Idaho. After completing his Ph.D., Doctor LaForce was a research associate at Sanford University in environmental chemistry and an assistant professor of hydrogeology at San Francisco State University. Dr. LaForce is currently the departmental head of Engineering Sciences at Clackamas Community College. He has been instructing water and wastewater courses for over 20 years.
2			
	10:10-10:20am	**Break**	
#17	**10:20-11:20am**	**Title:**	**Chemical Free Odor Control Along Conveyance Systems**
		Presenter:	Lewis Titus
	Moderators:	**Company/Organization:**	**TITUS® Industrial Group Inc.**
1	**Hunter BD**	**Brief Description:**	Every year Sewer Agencies face rising costs associated with wastewater treatment. Capacity to keep up with the growth in communities, more stringent regulations, energy prices, and managing labor are all budget related challenges faced by the industry. Combine these issues with the rising costs of collection and conveyance system maintenance, it all adds up to major financial obligations for agencies and municipalities. Innovations in De-Centralized Wastewater technologies have developed, evolved, and been implemented, with dramatic results. We will present several case studies, conducted over the last few years, in both public and private systems. Each case highlights the advantages that can be realized by implementing a De-Centralized system, and incorporating technologies such as aeration, ozone, mixing, and more. These, and other various technologies and products can provide effective, viable solutions, when incorporated into a De-Centralized wastewater system.
2			
	11:20-11:30am	**Break**	
#18	**11:30-12:30pm**	**Title:**	**Environmental Compliance Specialist-Working Towards Compliance: Permitting a Large Brewery While Establishing a New Pretreatment Program**
		Presenter:	Stephanie Kerns
	Moderators:	**Company/Organization:**	City of Newport-Environmental Compliance Specialist
1	**Hunter BD**	**Brief Description:**	
2			
	12:30-1:00pm	**Lunch**	
#19	**1:00-2:00pm**	**Title:**	**CM/GC Contracting Project for the City of Sandy Wastewater Treatment Plant**
		Presenter:	Keith Scranton
	Moderators:	**Company/Organization:**	Veolia
1		**Brief Description:**	Keith Scranton is a graduate of the Water & Environmental Technology program at Clackamas Community College and has a B.S. in Biochemistry from Portland State University. He began working with Veolia at the City of Sandy Wastewater and Drinking Water Systems in November of 2020 as an Operations and Maintenance Technician. Since then, he has operated the systems through the planning and construction phases of the CM/GC upgrade project, and he is regularly involved in the discussions between the city, construction crew, and engineering team. Currently, he is the Lead Operations and Maintenance Technician with a team of two other operators at full staff.
2		**Brief Description:**	
	2:00-2:10pm	**Break**	
#20	**2:10-3:10pm**	**Title:**	**Struvite: Methods Of Prevention, Removal And Recovery**
		Presenter:	**Brett Laney**
	Moderators:	**Company/Organization:**	Clean Water Services
1		**Brief Description:**	This presentation will cover why and where struvite forms, and common strategies for prevention, removal and re
2			
	3:10-3:20pm	**Break**	
	3:20-4:20pm	**Title:**	**Lessons Learned From A Decade Of Phosphorus Recovery At Clean Water Services' WRRF**
#21			
		Presenter:	Brett Laney
	Moderators:	**Company/Organization:**	Clean Water Services
1		**Brief Description:**	This session will cover initial assumptions about Ostara's technology vs 10 years of operating performance, the u
2			
	4:20-4:30pm	**Closing Remarks/Daily Wrap Up**	

Movies for OESAC Approval

Title	Description	TIME	Requested CEUs	Link for Water Env. School 2021
LAST CALL TO THE OASIS	Water. It's the earth's most valuable resource. Our cities are powered by it, countless industries depend on it and all living things need it to survive. But it's very possible that in the near future, there won't be enough to sustain life on our planet. This movie sheds light on the vital role water plays in our lives, exposes the defects in the current system, shows communities already struggling with its ill effect and introduces us to individuals who are championing revolutionary solutions.	105 minutes for movie/15 minute Q & A	0.2	
LIQUID ASSETS	Water infrastructure plays a critical role in protecting public health, promoting economic prosperity, and ensuring quality of life across the United States. Though largely out of sight and out of mind, many of these complex systems are aging, neglected and in need of immediate national and local attention. This movie seeks to facilitate local discussions about the urgent challenges facing our water infrastructure.	130 MINUTES	0.2	Link not available.
WATERLIFE	Waterlife is an immersion into the extraordinary beauty and complex toxicity of the Great Lakes. Following the epic cascade from Lake Superior to the Atlantic Ocean. Waterlife remind us of our essential connection to the water we take care of everyday.	109 MINUTES FOR MOVIE/11 MINUTES Q & A	0.2	
EARTH DAYS	Earth Days looks back to the dawn and development of the modern environmental movement—from its post-war rustlings in the 1950s and 1962 publication of Rachel Carson's incendiary bestseller Silent Spring, to the first wildly successful 1970 Earth Day Celebration and the subsequent firestorm of political action. Earth Days' secret weapon is a one-two punch of personal testimony and rate archival media. The extraordinary stories of the era's pioneers are illustrated with an incredible array of footage from candy-colored Eisenhauer-era tableau to classic tear-jerking 1970s anti-litter bug PSAs. Directed by acclaimed documentarian Robert Stone this AMERICAN EXPERIENCE film is both a poetic meditation on man's complex relationship with nature and engaging history of the revolutionary achievements—and missed opportunities—of groundbreaking eco-activism.	102 MINUTES MOVIE/18 MINUTES Q & A	0.2	
POISONED WATERS	More than three decades after the Clean Water Act, two iconic waterways--the great coastal estuaries of Puges Sound and the Chesapeak Bay--are in perilous condition. With polluted runoff still flowing in from industry, agriculture and massive suburban development, scientists fear contamination to the food chain and drinking water for millions of people. A growing list of endangered species also is threatened in both estuaries. **POISONED WATERS** examines the rising hazards to human health and the ecosystem and why it's so hard to keep our waters clean.	120 MINUTES	0.2	
BLUE GOLD WORLD WATER WARS	Wars of the future will be fought over water, as they are today over oil, as the source of all life enters the global marketplace and political arena. Corporate giants, private invenstors, and corrupt governments vie for control of our dwindling fresh water wupply, promptin protests, lawsuits, and revolutions from citizens fighting for the right to survive. Past civilizations have collapsed from poor water management. Will ours too?	90 minutes movie/30 minutes Q & A	0.2	

Water Environment School 2021 Committee Roster

Name	Section	Agency
Andersen, Jeannie	Stormwater	Clackamas Water Environment Services
Bennett-Daggett, Hunter	Collections	Tetra Tech
Busby, Erin	Collections	Veolia - City of Sandy
Collofello, Ami	College Admin Support	CCC
Drew, Phil	Safety & Health	Saddle Mountain Safety Management
Duffy, Erin	Registration	Clackamas Water Environment Services
Gates, Akiko	Stormwater	Clackamas Water Environment Services
Grimes, Brittany	Pretreatment	City of Portland
Hart, Jeff	Asset Management/Technology/Activated Sludge	Clean Water Services
LaForce, Matt	College Liaison	Clackamas Community College
Laney, Brett	Water Resource Recovery	Clean Water Services
Lewis, John	College Liaison	Clackamas Community College--Retired
Nagy, John	Stormwater	Clackamas Water Environment Services
Nurmi, Jim	College Liaison	Clackamas Community College
Owen, Chad	ORWEF Treasurer	
Owens, Tim	Vendors	Correct Equipment
Patterson, Bob	Stormwater	Clark County
Sether, Naomi	College Admin Support	CCC
Swann, Andria	Pretreatment	City of Sumner. WA
West, Judy	Safety & Health	Clean Water Services
Zak, Matt	Operations and Maintenance	Clackamas Water Environment Services