



American Water Works Association
Pacific Northwest Section

WATERWORKS SCHOOL PROGRAM



www.pnws-awwa.org/



2023 WATERWORKSSCHOOL COMMITTEE

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Supervision & Leadership, Committee Chair

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CCC Administrative Assistant, WET Program

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CCC Facilitator, Water Operations

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Water Quality & Treatment

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Vendors

Paul Visser
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Water Operations

Michael Grimm
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McKenzie James
Committee Member

Amy Meaut
Water Quality & Treatment

Rodrigo Prugue
Water Operations

Bridget Garlinghouse
Committee Member

Rita Fallin
WET Program Assistant

Treatment Plant Tour

Wednesday, June 21, 2023
2:15 - 4:30 pm

We will be touring the North Clackamas County Water Commission Treatment Plant. Participants will be asked to drive their own vehicle and can leave when the tour is over.

*Pre-registration is **required** for the tour. Sign up at the registration desk!
(Limit 20, First Come, First Serve)*

CCC Tunnel & Underground Pipe Tour

Tuesday, June 20, 2023
3:30 – 4:30 pm
Wednesday, June 21, 2023
3:30 - 4:30 pm

Take a tour of Clackamas Community College's underground pipe gallery and tunnels. Learn the history of the campus's water distribution system, cross-connections, and backflow assemblies and how it has changed over time. Limited to 15 people/tour.

*Pre-registration is **required** for the tour*

Sign up at the registration desk.

(Limit 15, First Come, First Serve)

Vendor's Day!
Wednesday, June 21, 2023
Gregory Forum
9 am-3 pm

Meet vendors, learn about new and exciting products, win prizes, and earn CEUs

Day 1: Tuesday, June 20, 2023

		Section 1 Supervision & Leadership McLoughlin Auditorium	Section 2 Water Operations P131	Section 3 Water Quality & Treatment P132
7:00-8:45	<i>REGISTRATION Wacheno Center, Wacheno Center - Coffee and pastries</i>			
9:00-10:00	1	OPENING ANNOUNCEMENTS/KEYNOTE SPEAKER Mark Knudson <i>Seven Strategies for Enhancing the Effectiveness of Water Professionals</i> LOCATION: Neimeyer Center—Osterman Theater		
10:00-10:20	<i>BREAK - Coffee and pastries –Wacheno Center</i>			
10:20-11:20	2	Improve Your Public Speaking Without Saying a Word <i>Brian Murphy Tetra Tech</i>	If Check Valves Were Cars: Performance, Styles, and Function <i>Steve Causseaux Cimco-GC Systems</i>	The Science of Water Treatment <i>Mark Carey ALUMICHEM</i>
11:25-12:25	3	Evolving Approaches to Public Outreach on a Regional Scale <i>Bonny Cushman Regional Water Providers Consortium</i>	Intro to Vibration Analysis <i>Greg Bown Ideal Vibration Reliability Solutions</i>	Joint Water Commission Algae Response Plan <i>Sarah Honious Joint Water Commission</i>
12:25-1:10	<i>LUNCH – WACHENO CENTER - Mixtlan Grill Mexican Restaurant - WACHENO CENTER</i>			
1:10-2:10	4	Onboarding Programs for Distribution Teams Steven Hernandez Jurupa Community Services District	History and Repair of Fire Hydrants <i>Frank Ray East Jordan</i>	Using Simulated Distribution System Testing to Evaluate Treatment Approaches for Disinfection Byproducts <i>Anna Voss City of Portland</i>
2:15-3:15	5	Leadership Program & Chamber of Commerce <i>Megan De Salvo Tigard Chamber of Commerce</i>	The Evaluation and Designation of Confined Spaces <i>Frank Ray East Jordan</i>	Manganese - New Concerns for a Legacy Contaminant <i>Andy Eaton Eaton Environmental Water Quality Consulting, LLC</i>

3:15-3:30	<i>BREAK - Coffee and pastries - Wacheno Center</i>			
3:30-4:30	6	Reboot & Recharge: A fresh start for CRW's Emergency Management program <i>Beth McGinnis & Adam Bjornstedt</i> <i>Clackamas River Water Providers</i>	Clackamas Community College Tunnel Tour <i>Jeff Tapp</i> <i>Clackamas Community College</i>	Upper Tualatin Wildfire Protection Plan <i>Jacob Krall</i> <i>GeoSystems Analysis, Inc.</i>

Day 2: Wednesday, June 21, 2023

		Section 1 Supervision & Leadership McLoughlin Auditorium	Section 2 Water Operations P 131	Section 3 Water Quality & Treatment P132
7:00-7:45		<i>REGISTRATION Wacheno Center, Wacheno Center - Coffee and pastries</i>		
8:00-9:00	7	2020 Groundwater Development Master Plan (GDMP) <i>Kari Duncan Rockwood Peoples Utility District</i>	Managing an Aging Control Valve System: Knowledge, Practice, Maintenance, and Replacement <i>Steve Causseaux Cimco-GC Systems</i>	Protecting Our Drinking Water McKenzie W. James
9:05-10:05	8	Leadership the Dirty Secrets They Didn't Tell You <i>Chief Kathy City of Tigard</i>	Locating 101: The Science Behind Tracer Wire Systems <i>Erin Sealy Cimco-GC Systems</i>	VENDOR DISPLAY
10:20-11:20	9	VENDOR DISPLAY	Practical Guide to Utility Locating <i>Brian Moss RJM Equipment</i>	THM Mitigation in Water Distribution Systems through Water Storage Tank Mixing and Aeration <i>Ethan Brooke UGSI Solutions, Inc.</i>
11:25-12:25	10	The Role We Play for Emergencies <i>Dan Weitzel City of Manzanita</i>	VENDOR DISPLAY	Disinfectant Residual Control in Water Distribution Systems <i>Ethan Brooke UGSI Solutions, Inc.</i>
12:25-1:10		<i>LUNCH – Buster's BBQ - WACHENO CENTER</i>		
1:10-2:10	11	Rainwater; StormWater Point of Disposal McKenzie W James	Making the Case for Redundant SCADA Communication Systems <i>Andrew Degner City of Gresham</i>	PFAS Issue Update: National, State and Local Perspectives <i>Doug Wise City of Portland</i>

2:15-3:15	12	Leadership and Team Building <i>Andrew Degner</i> <i>Wastewater Manager,</i> <i>City of Gresham</i>	On-Site Sodium Hypochlorite Generation <i>Ethan Brooke</i> <i>UGSI solutions Inc</i>	North Clackamas County Water Commission Treatment Plant Tour <i>Joe Rogers</i> <i>NCCWC</i>
3:15-3:30	<i>BREAK - Coffee and pastries - Wacheno Center</i>			
3:30-4:30	13	Preparing for an Interview <i>Julia Warren</i> <i>Human Resources,</i> <i>City of Lake Oswego</i>	Clackamas Community College Tunnel Tour <i>Jeff Tapp</i> <i>Clackamas Community College</i>	North Clackamas County Water Commission Treatment Plant Tour <i>Joe Rogers</i> <i>NCCWC</i>

Day 3: Thursday, June 22, 2023

		Section 1 Supervision & Leadership McLoughlin Auditorium	Section 2 Water Operations P 131	Section 3 Water Quality & Treatment P132
7:00-7:45	<i>REGISTRATION Wacheno Center - Coffee and pastries</i>			
8:00-9:00	14	Climate Change Strategies <i>Steve Fries EPA, Office of Ground Water and Drinking Water</i>	ABC-Like Test Question Review Op#1-2 <i>James T. Nurmi, Ph.D. Clackamas Community College WET Program</i>	When a Tree Falls in the Forest, Part 1 <i>David Jacob PE Hydra Engeneering</i>
9:05-10:05	15	Change is Good, Don't Fear it! Identifying YOUR Transferable Skills! <i>Mike Day Re/Max Equity</i>	ABC-Like Test Question Review Op#3-4 <i>James T. Nurmi, Ph.D. Clackamas Community College WET Program</i>	When a Tree Falls in the Forest, Part 2 <i>David Jacob PE Hydra Engeneering</i>
10:20-11:20	16	Workforce Development: Recruiting, Training, and Incentivizing Tomorrow's Operators <i>Todd Evers City of Hillsboro / JWC</i>	Certification Updates from Oregon Health Authority – (Part 1) <i>Tony Fields Oregon Health Authority</i>	Optimizing Distribution System Water Quality Through Data Driven Decisions <i>Tara Vanderwey TVWD</i>
11:25-12:25	17	Unleashing the Power of Technology for Effective Communication and Organization <i>Laura Oxsen, 3J Consulting</i>	Certification Updates from Oregon Health Authority – (Part 2) <i>Tony Fields Oregon Health Authority</i>	PFAS Mitigation - Lessons Learned from a Regional Water Provider <i>Marshall Meyer Lakewood Water District</i>
12:25-1:10	<i>LUNCH – INGALLINA'S EXECUTIVE BOX LUNCH WACHENO CENTER</i>			
1:10-2:10	18	Source Water Protection Planning in an Agricultural Watershed <i>Jo Lewis Geosyntec Consultants, Inc.</i>	Training the Next Generation of ALL Safety Leaders (Part 1 of 3) <i>Leigh Manning SAIF Corporation</i>	Modified Tracer Testing Methodology for Long Detention Times <i>Andrew Nishihara Stantec</i>

2:15-3:15	19	<p>Pollutant Load Modeling Webtool for Source Water Protection <i>Jamie Feldman</i> <i>Geosyntec Consultants, Inc.</i></p>	<p>Training the Next Generation of ALL Safety Leaders (Part 2 of 3) <i>Leigh Manning</i> <i>SAIF Corporation</i></p>	<p>Emerging Contaminants in Drinking Water <i>Gregg Baird</i> <i>Oregon Health Authority</i></p>
3:15-3:30	<i>BREAK - Coffee and pastries - Wacheno Center</i>			
3:30-4:30	20	<p>Yes, Council is Elected. But We Have Jobs, Too. John Goodhouse <i>Small Business Owner</i> <i>and</i> <i>Independent Insurance Agent</i></p>	<p>Training the Next Generation of ALL Safety Leaders (Part 3 of 3) <i>Leigh Manning</i> <i>SAIF Corporation</i></p>	<p>Seeing Purple: Design and Construction of the City of Beaverton's Non-potable Water System for Municipal Irrigation <i>Jason Melady</i> <i>Summit Water Resources</i></p>

**Session Descriptions:
Section 1 Supervision & Leadership McLoughlin
Auditorium**

DAY ONE

9:00-10:00 AM	1	<p style="text-align: center;">Seven Strategies for Enhancing the Effectiveness of Water Professionals <i>Mark Knudson</i></p> <p>Mark will share observations and insights drawn from his 40-year career in the water industry in the Pacific Northwest. His thoughtful perspectives and inspiring stories are sure to help enhance the effectiveness of water professionals as they tackle many of the significant challenges facing the water industry.</p>
10:20-11:20 AM	2	<p style="text-align: center;">Improve Your Public Speaking Without Saying a Word <i>Brian Murphy</i> <i>Tetra Tech</i></p> <p>The ability to speak publicly is a skill that can set you apart from peers and open professional possibilities that will launch a career. Much of the message we deliver while speaking has nothing to do with our words. If we aren't in control of the unspoken factors the impact of our words is lost. Effective public speaking begins with the Communication Triad of breath, posture, and voice. Understanding and mastering these three factors will improve your message before you ever utter a word. Attendees will learn how to control breathing and the impact that breathing has on the message; how posture establishes credibility or approachability; and; and how voice pattern strengthens conviction and encourages interaction. This presentation will give attendees the tools, knowledge, and understanding to become better presenters soon as you leave the room.</p>
11:25-12:25 PM	3	<p style="text-align: center;">Evolving Approaches to Public Outreach on a Regional Scale <i>Bonny Cushman</i> <i>Regional Water Providers Consortium</i></p> <p>Learn about how the Regional Water Providers Consortium has worked together with its 25 water provider members and community partners to develop and implement multimedia campaigns that educate customers about water conservation, emergency preparedness, source water protection, value of drinking water, and other topics. The Consortium currently uses television, public transit advertising, radio, and a suite of digital tools to deliver its messaging to the public in English and Spanish.</p> <p>This presentation will provide an overview of the Consortium's messages and public outreach strategies over its first 25 years and how they continually pivoted to meet changing customer needs and evolving media trends. It will also highlight how the Consortium is using its current strategic plan update as an opportunity to embed equity into its outreach efforts over the next five years.</p>

1:10-2:10 PM		<p style="text-align: center;">Onboarding Programs for Distribution Teams Steven Hernandez Jurupa Community Services District</p> <p>Level up he says. Steven will present on his successful onboarding program that has been in place for over a year at JCSD. Steve has a special passion for water, and he wants to share it with you!</p> <p>You may recognize his name or his face on social media so come meet Steve/ WWP (WaterWisePro) virtually as he talks about this program and lessons learned.</p>
2:15-3:15 PM		<p style="text-align: center;">Leadership Program & Chamber of Commerce <i>Megan De Salvo</i> <i>Tigard Chamber of Commerce</i></p> <p>Connect. Collaborate. Convene. Megan will explain what purpose the chamber serves to the community and speak about their leadership program. The goal of Leadership Tigard is to inspire rising leaders to participate in their community. The program is designed to put the participants in contact with numerous local leaders; to build an increasing awareness of the functioning of our community, and instill a heightened personal commitment to become involved in their community at a variety of levels. Reach out to your Chamber of Commerce to see if they have a Leadership program.</p>
3:30-4:30 PM		<p style="text-align: center;">Reboot & Recharge: A fresh start for CRW's Emergency Management program <i>Beth McGinnis & Adam Bjornstedt</i> <i>Clackamas River Water Providers</i></p> <p>By the end of this presentation, learners will understand:</p> <ul style="list-style-type: none"> • The role Emergency & Incident Management plays in the operations of a mid-size water utility. • The criteria and process used at CRW to place employees in disaster roles, while balancing impacts on business operations. • The structure of an education and training plan to support Agency's Incident Management role using online, classroom-based, and "real-world" exercises and its impact on routine operations over 18 months. • The importance of blending AWIA-required emergency planning concepts into a framework established by FEMA, to support receiving grants and funding various projects. • The benefits to the water utility and customers in building strong community relationships with county emergency management agencies, fellow drinking water providers, and regulatory partners to ensure an equitable and fair process of large-scale incident management. • Determining resilience and security project priorities in the context of the District's overall capital improvement planning. • The approach to ensuring continuous improvement of our emergency planning and response functions.

**Session Descriptions:
Section 1 Supervision & Leadership McLoughlin
Auditorium**

DAY TWO

8:00-9:00 AM	7	<p style="text-align: center;">2020 Groundwater Development Master Plan (GDMP) <i>Kari Duncan</i> <i>Rockwood Peoples Utility District</i></p> <p>The Rockwood Water People’s Utility District (District) and The City of Gresham (City) provides water service to approximately 137,000 people in Multnomah County, within the Cities of Gresham, Fairview, and Portland. The current water supply includes wholesale purchase from the Portland Water Bureau Bull Run System supplemented with Groundwater from District and City owned and operated wells in the summer.</p> <p>In 2020, the respective District and City elected bodies completed and approved the 2020 Groundwater Development Master Plan (GDMP), which defined a series of projects that would develop senior groundwater rights held by the District on the Sand and Gravel Aquifer in the Columbia Basin to fully provide water to Rockwood and Gresham, named the Cascade Groundwater Alliance.</p> <p>The project consists of \$165 Million of improvements to include well construction and development, groundwater treatment facilities for Manganese and Iron removal, transmission piping and storage elements. The project is funded by a Water Infrastructure Finance and Innovation Act (WIFIA) loan and Revenue Bonds. Kari will provide an overview the planning, groundwater analysis and modeling, financing plan, design and construction that is taking place to deliver this project, to be completed by 2026.</p>
9:05-10:05 AM	8	<p style="text-align: center;">Leadership the Dirty Secrets They Didn’t Tell You <i>Chief Kathy</i> <i>City of Tigard</i></p> <p>Leadership begins before you have the formal title or positional power. How to prepare for leadership, how to continue to develop as a leader, and how to thrive. With 35 years of law enforcement experience and 25 years in supervision/leadership, I will discuss lessons learned (both positive and negative) that will hopefully provide context to your personal journey into supervision and leadership or continue to build upon your current foundation</p>
10:20-11:20 AM	9	VENDOR DISPLAY

11:25-12:25 PM	10	<p style="text-align: center;">The Role We Play for Emergencies <i>Dan Weitzel</i> <i>City of Manzanita</i></p> <p>Are you ready for an emergency? Fire, earthquake, snow, and flooding all require one same thing, You! We will talk about emergencies from the 30,000 foot level. Look at resources you may know about and others you don't. I will be sharing tools that I have used to get a volunteer workforce, grants, equipment, and further education.</p>
1:10-2:10 PM	11	<p style="text-align: center;">No Presentation</p>
2:15-3:15 PM	12	<p style="text-align: center;">Leadership and Team Building <i>Andrew Degner</i> <i>Wastewater Manager, City of Gresham</i></p> <p>Overview of how the 5-level Team Dysfunction Pyramid combined with effective communication and follow up was used to rebuild a broken and dysfunctional WTP O&M staff. Session provides proven supervisory and management principles to establish trust, mutual expectations, and rapport with O&M staff.</p>
3:30-4:30 PM	13	<p style="text-align: center;">Preparing for an Interview <i>Julia Warren</i> <i>Human Resources, City of Lake Oswego</i></p> <p>As people look ahead, planning careers, they often think about the positions they'd like to eventually be in. They think about courses to take, maybe take an assignment that will give them the experience they need to advance. But do they prepare for one of the most essential moments often required to get through to that next step? The interview. I'd like to share some insight about interviews from the interviewer's perspective, that may help others better prepare.</p>

**Session Descriptions:
Section 1 Supervision & Leadership McLoughlin
Auditorium**

DAY THREE

8:00-9:00 AM	14	<p style="text-align: center;">Climate Change Strategies <i>Steve Fries</i> <i>EPA, Office of Ground Water and Drinking Water</i></p> <p>Climate change impacts pose an immediate and long-term threat to the continuity of wastewater and stormwater operations and infrastructure. To reduce the risks associated with climate-related hazards, the Environmental Protection Agency's (EPA) Creating Resilient Water Utilities (CRWU) initiative provides technical assistance and training designed to improve utility capacity to use climate science and decision-making methods to identify and implement effective adaptation options. This session will communicate the real-world challenges and successes of utilities in adapting to the impacts of climate change. EPA will highlight the Climate Resilience Evaluation and Awareness Tool (CREAT), an application that guides water utility managers through a climate risk assessment process and helps them evaluate adaptation priorities. In addition, EPA will highlight resources that can assist water utilities of any size and stage of the climate adaptation planning process, including CRWU's Data Maps and the Resilient Strategies Guide.</p>
9:05-10:05 AM	15	<p style="text-align: center;">Change is Good, Don't Fear it! Identifying YOUR Transferable Skills! <i>Mike Day</i> <i>Re/Max Equity</i></p> <p>Thinking of changing careers or positions within your organization? Feel pigeonholed into one line of work due to job specific skills you've developed over the years? I was in your shoes! After 15 years as a police officer, that kind of felt like all I was qualified to do. However, when I took the time to identify the skills I developed over the course of my career, I discovered I had extremely transferable skills. The reality is, so do you. Using my recent career change as a "case study", we'll discuss how you can identify your transferable skills or help others do the same.</p>
10:20-11:20 AM	16	<p style="text-align: center;">Workforce Development: Recruiting, Training, and Incentivizing Tomorrow's Operators <i>Todd Evers</i> <i>City of Hillsboro / JWC</i></p> <p>Discuss how the Joint Water Commission plans to recruit, train and incentivize operators.</p>

11:25-12:25 PM	17	<p style="text-align: center;">Unleashing the Power of Technology for Effective Communication and Organization <i>Laura Oxsen,</i> <i>3J Consulting</i></p> <p>Technology is a powerful tool that can be used to aid in organization and communication. The need for effective communication and organization grows as retiree roles are filled by younger generations. In today's society where information is shared quickly, clear and concise public outreach is essential to maintain trust. Shared folders, project management applications, curated templates, and social media applications can be used to both improve the organization of ideas and enhance the productivity of communication.</p>
1:10-2:10 PM	18	<p style="text-align: center;">Source Water Protection Planning in an Agricultural Watershed <i>Jo Lewis</i> <i>Geosyntec Consultants, Inc.</i></p> <p>The CRWP received a grant from the Natural Resources Conservation Service (NRCS) to develop a Source Water Assessment Plan (SWAP) for the portion of the Clackamas River watershed where a predominant land use is agriculture. This presentation will provide background on the study area and an overview of the analyses conducted as part of the SWAP development including a contaminant source and risk assessment, with an emphasis on agricultural sources of pesticides and nutrients. The completion of this SWAP paves the way for outreach to local producers and additional support from the NRCS to implement non-point source pollution mitigation strategies identified in the SWAP.</p>
2:15-3:15 PM	19	<p style="text-align: center;">Pollutant Load Modeling Webtool for Source Water Protection <i>Jamie Feldman</i> <i>Geosyntec Consultants, Inc.</i></p> <p>An interactive, web-based pollutant load model has been developed for the Clackamas River Water Providers in Oregon to support programs that protect the drinking water source water quality of the Clackamas River. The tool allows users to create best management practice (BMP) scenarios to evaluate the potential of select BMPs to reduce pollutant loading from various land uses. This presentation will cover the model inputs, the algorithm that drives the tool, and how the tool may be used to support implementation of BMPs in the Clackamas River watershed. The presentation will also include a demonstration of the web tool.</p>
3:30-4:30 PM	20	<p style="text-align: center;">Yes, Council is Elected. But We Have Jobs, Too. John Goodhouse <i>Small Business Owner and Independent Insurance Agent</i></p> <p>John will provide his insight on the City Council after he has spent many years serving in many different capacities in local government.</p>

**Session Descriptions:
Section 2
Water Operations**

DAY ONE

9:00-10:00 AM	1	<p style="text-align: center;">Seven Strategies for Enhancing the Effectiveness of Water Professionals <i>Mark Knudson</i></p> <p>Mark will share observations and insights drawn from his 40-year career in the water industry in the Pacific Northwest. His thoughtful perspectives and inspiring stories are sure to help enhance the effectiveness of water professionals as they tackle many of the significant challenges facing the water industry.</p>
10:20-11:20 AM	2	<p style="text-align: center;">If Check Valves Were Cars: Performance, Styles, and Function <i>Steve Causseaux</i> <i>Cimco-GC Systems</i></p> <p>Learn about the basics of check valves and what parameters go into the design and selection of check valves in your water distribution system.</p>
11:25-12:25 PM	3	<p style="text-align: center;">Intro to Vibration Analysis <i>Greg Bown</i> <i>Ideal Vibration Reliability Solutions</i></p> <p>This session will go over the use of vibration analysis of water utility mechanical components as part of condition-monitoring planned/predictive maintenance program to help verify and assure equipment is operating satisfactorily.</p>
1:10-2:10 PM	4	<p style="text-align: center;">History and Repair of Fire Hydrants <i>Frank Ray</i> <i>East Jordan</i></p> <p>This session will go into the general history of how hydrants came about, approaches of various manufacturers, and how to repair hydrants after they have been struck by a vehicles., We will also touch on the repair and replacement of hydrant valves.</p>
2:15-3:15 PM	5	<p style="text-align: center;">The Evaluation and Designation of Confined Spaces <i>Frank Ray</i> <i>East Jordan</i></p> <p>The Confined Space presentation shows how to evaluate and designate confined spaces. We will also discuss how today's hatches are providing fall protection, ladder safety and correct clearance placement.</p>
3:30-4:30 PM	6	<p style="text-align: center;">Clackamas Community College Tunnel Tour <i>Jeff Tapp</i> <i>Clackamas Community College</i></p> <p>Take a tour of Clackamas Community College's underground pipe gallery and tunnels. Learn the history of the campus's water distribution system, cross connections, and backflow assemblies and how it has changed over time. Limited to 15 people/tour.</p>

**Session Descriptions:
Section 2
Water Operations**

DAY TWO

8:00-9:00 AM	7	<p style="text-align: center;">Managing an Aging Control Valve System <i>Steve Causseaux</i> <i>Cimco-GC Systems</i></p> <p>Reviewing knowledge, practice, maintenance, and replacement of aging control valves.</p>
9:05-10:05 AM	8	<p style="text-align: center;">Locating 101: The Science Behind Tracer Wire Systems <i>Erin Sealy</i> <i>Cimco-GC Systems</i></p> <p>Learn about the basics of using tracer wire, the different types of tracer wire, installation and general locate knowledge about installation and repair of tracer wire.</p>
10:20-11:20 AM	9	<p style="text-align: center;">Practical Guide to Utility Locating <i>Brian Moss</i> <i>RJM Equipment</i></p> <p>This session will go over locate methods including plastic pipe locates, water pulse generators, water pipe strikers, and ground penetration radar techniques. We will also learn about different types of signals, applying signals, proper ground placement and typical locate errors and how to overcome them.</p>
11:25-12:25 PM	10	VENDOR DISPLAY
1:10-2:10 PM	11	<p style="text-align: center;">Making the Case for Redundant SCADA Communication Systems <i>Andrew Degner</i> <i>City of Gresham</i></p> <p>Communications Failure from Being a Major Catastrophe Overview of how an unexpected SCADA radio telemetry failure caused a six-day SCADA outage which could have been more extreme without communications back up from a partial cellular system. Session provides an overview of SCADA communications field hardware and software components..</p>
2:15-3:15 PM	12	<p style="text-align: center;">On-Site Sodium Hypochlorite Generation <i>Ethan Brooke</i> <i>UGSI solutions Inc</i></p> <p>On-Site Sodium Hypochlorite Generation as a safe alternative to chlorine gas or bulk hypochlorite for water disinfection.</p>

3:30-4:30 PM	13	<p style="text-align: center;">Clackamas Community College Tunnel Tour <i>Jeff Tapp</i> <i>Clackamas Community College</i></p> <p>Take a tour of Clackamas Community College's underground pipe gallery and tunnels. Learn the history of the campus's water distribution system, cross connections, and backflow assemblies and how it has changed over time. Limited to 15 people/tour.</p>
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**Session Descriptions:
Section 2
Water Operations**

DAY THREE

8:00-9:00 AM	14	<p style="text-align: center;">ABC-Like Test Question Review Op#1-2 <i>James T. Nurmi, Ph.D.</i> <i>Clackamas Community College WET Program</i></p> <p>Join us for a quick review, examples and discussion of topics most covered in the level 1 and 2 water treatment and distribution certification exams.</p>
9:05-10:05 AM	15	<p style="text-align: center;">ABC-Like Test Question Review Op#3-4 <i>James T. Nurmi, Ph.D.</i> <i>Clackamas Community College WET Program</i></p> <p>Join us for a quick review, examples and discussion of topics most covered in the level 3 and 4 water treatment and distribution certification exams.</p>
10:20-11:20 AM	16	<p style="text-align: center;">Certification Updates from Oregon Health Authority – (Part 1) <i>Tony Fields</i> <i>Oregon Health Authority</i></p> <p>Certification rules and requirements for water distribution and treatment certifications.</p>
11:25-12:25 PM	17	<p style="text-align: center;">Certification Updates from Oregon Health Authority – (Part 2) <i>Tony Fields</i> <i>Oregon Health Authority</i></p> <p>Certification rules and requirements for water distribution and treatment certifications.</p>
1:10-2:10 PM	18	<p style="text-align: center;">Training the Next Generation of ALL Safety Leaders (Part 1 of 3) <i>Leigh Manning</i> <i>SAIF Corporation</i></p> <p>The world is constantly changing, creating unique challenges for upcoming safety leaders. This interactive workshop provides an overview of good safety leadership, training using the cafeteria style of learning, and strategies for how to conduct leadership training at your organization. The workshop includes tools and resources participants can use at their organizations to train leaders.</p>
2:15-3:15 PM	19	<p style="text-align: center;">Training the Next Generation of ALL Safety Leaders (Part 2 of 3) <i>Leigh Manning</i> <i>SAIF Corporation</i></p> <p>The world is constantly changing, creating unique challenges for upcoming safety leaders. This interactive workshop provides an overview of good safety leadership, training using the cafeteria style of learning, and strategies for how to conduct leadership training at your organization. The workshop includes tools</p>

		and resources participants can use at their organizations to train leaders.
3:30-4:30 PM	20	<p style="text-align: center;">Training the Next Generation of ALL Safety Leaders (Part 3 of 3) <i>Leigh Manning</i> <i>SAIF Corporation</i></p> <p>The world is constantly changing, creating unique challenges for upcoming safety leaders. This interactive workshop provides an overview of good safety leadership, training using the cafeteria style of learning, and strategies for how to conduct leadership training at your organization. The workshop includes tools and resources participants can use at their organizations to train leaders.</p>

**Session Descriptions:
Section 3
Water Quality & Treatment**

DAY ONE

9:00-10:00 AM	1	<p style="text-align: center;">Seven Strategies for Enhancing the Effectiveness of Water Professionals <i>Mark Knudson</i></p> <p>Mark will share observations and insights drawn from his 40-year career in the water industry in the Pacific Northwest. His thoughtful perspectives and inspiring stories are sure to help enhance the effectiveness of water professionals as they tackle many of the significant challenges facing the water industry.</p>
10:20-11:20 AM	2	<p style="text-align: center;">The Science of Water Treatment <i>Mark Carey</i> ALUMICHEM</p> <p>Raw water characteristics to monitor, how they affect coagulation and flocculation, comparing and contrasting different monitoring options (ex: TOC/DOC vs. Color vs. UVT) and using these to identify potential treatment improvements.</p>
11:25-12:25 PM	3	<p style="text-align: center;">Joint Water Commission Algae Response Plan <i>Sarah Honious</i> <i>Joint Water Commission</i></p> <p>Will review the purpose of the plan and the updates made in 2023 based on our latest data and regulatory drivers.</p>
1:10-2:10 PM	4	<p style="text-align: center;">Using Simulated Distribution System Testing to Evaluate Treatment Approaches for Disinfection Byproducts <i>Anna Voss</i> <i>City of Portland</i></p> <p>Portland is in the process of implementing filtration on its historically unfiltered Bull Run surface water supply. To date, Portland has conducted over three years of pilot testing to inform the design and operation of the new filtration plant. A series of simulated distribution system (SDS) tests were conducted to evaluate pre-oxidation approaches (pre-ozonation and pre chlorination) and secondary disinfection methods (chloramines and free chlorine) on finished water quality, including disinfection byproduct formation, chlorine residual stability, and taste and odor. This presentation will step through the testing approach, provide an overview of the Flavor Profile Analysis method, and summarize the findings.</p>
2:15-3:15 PM	5	<p style="text-align: center;">Manganese - New Concerns for a Legacy Contaminant <i>Andy Eaton</i> <i>Eaton Environmental Water Quality Consulting, LLC</i></p> <p>The adverse impact of manganese (Mn) on drinking water quality is receiving renewed attention by regulators and utilities based on recent research. This will review new regulatory guidelines, behavior of manganese in water systems, and the UCMR results which show widespread occurrence of Mn in drinking water across the US and more specifically the Pacific Northwest region.</p>

3:30-4:30 PM	6	<p style="text-align: center;">Upper Tualatin Wildfire Protection Plan <i>Jacob Krall</i> <i>GeoSystems Analysis, Inc.</i></p> <p>This presentation will discuss the development of a Wildfire Protection Plan for the Joint Water Commission and Clean Water Services. This plan is intended to serve as a guidance document for management of key assets and resources to protect against and mitigate the impacts of wildfire. The talk will discuss the important resources and assets that the document identifies as vulnerable to wildfire, and actions that can be taken before, during, and after a wildfire event to mitigate the impacts. The plan builds on previous research conducted by Oregon State University Extension Service Fire Program as well as the experiences of local utilities impacted by the 2020 wildfire season.</p>
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**Session Descriptions:
Section 3
Water Quality & Treatment**

DAY TWO

8:00-9:00 AM	7	<p style="text-align: center;">Protecting Our Drinking Water <i>McKenzie W James</i></p> <p>This class teaches Cross Connection of the potable drinking water and wastewater. Types of hazards, backflows, risk of contamination and pollution in the potable water system, in homes and food establishments, and some plumbing code definitions. Do you know what an air gap is? Does your home or business have a hose bib with or without atmospheric vacuum breakers?</p>
9:05-10:05 AM	8	<p style="text-align: center;">VENDOR DISPLAY</p>
10:20-11:20 AM	9	<p style="text-align: center;">THM Mitigation in Water Distribution Systems through Water Storage Tank Mixing and Aeration <i>Ethan Brooke</i> <i>UGSI Solutions, Inc.</i></p> <p>This 60-minute seminar will provide water system managers, operators and engineers a practical understanding of the conditions, chemistry and science behind trihalomethane (THMs) generation in water distribution systems. Importantly, the second half of the seminar will present a suite of proven technologies that can be employed to reduce THM levels in real world water distribution systems.</p>
11:25-12:25 PM	10	<p style="text-align: center;">Disinfectant Residual Control in Water Distribution Systems <i>Ethan Brooke</i> <i>UGSI Solutions, Inc.</i></p> <p>This 60-minute seminar will provide water system managers, operators and engineers a practical understanding of the conditions, chemistry and science behind affecting positive control of both chloramine and free-chlorine levels in water distribution systems. Importantly, the second half of the seminar will present a suite of proven technologies that can be employed to automatically control disinfectant residual levels in real world water distribution systems.</p>
1:10-2:10 PM	11	<p style="text-align: center;">PFAS Issue Update: National, State and Local Perspectives <i>Doug Wise</i> <i>City of Portland</i></p> <p>Per-and-polyfluoroalkyl Substances (PFAS), also known as Forever Chemicals due to their persistence in the environment, have become an increasingly important issue for drinking water utilities and regulators in recent years. 2023 looks to be pivotal, as the first EPA Maximum Contaminant Levels for any chemicals in this class are expected to be promulgated. This session will provide an overview of the concerns around this class of emerging contaminants, highlight recent and up-coming developments both nationally and in Oregon, and describe how the Portland Water Bureau is ensuring safe water supplies while navigating the ever-changing scientific and regulatory conditions related to PFAS.</p>

2:15-3:15 PM	12	<p style="text-align: center;">North Clackamas County Water Commission Treatment Plant Tour <i>Joe Rogers</i> <i>NCCWC</i></p> <p>We will be touring the North Clackamas County Water Commission Treatment Plant. Participants will be asked to drive their own vehicle and can leave when the tour is over.</p>
3:30-4:30 PM	13	<p style="text-align: center;">North Clackamas County Water Commission Treatment Plant Tour <i>Joe Rogers</i> <i>NCCWC</i></p> <p>We will be touring the North Clackamas County Water Commission Treatment Plant. Participants will be asked to drive their own vehicle and can leave when the tour is over.</p>

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Section 3
Water Quality & Treatment**

DAY THREE

8:00-9:00 AM	14	<p style="text-align: center;">When a Tree Falls in the Forest, Part 1 <i>David Jacob PE</i> <i>Hydra Engeneering</i></p> <p>Hour 1 – A tree fell in the forest. The tree landed on a surface water treatment plant. The story is the initial, interim, and then long-term restoration of the system</p>
9:05-10:05 AM	15	<p style="text-align: center;">When a Tree Falls in the Forest, Part 2 <i>David Jacob PE</i> <i>Hydra Engeneering</i></p> <p>Hour 2 - A tree fell in the forest (again). This time the tree landed on a waterline bridge. The story is the initial, interim, and then long-term restoration of the system (again).</p>
10:20-11:20 AM	16	<p style="text-align: center;">Optimizing Distribution System Water Quality Through Data Driven Decisions <i>Tara Vanderwey</i> <i>TVWD</i></p> <p>In 2020 TVWD formed a “task force” to address problem areas in the distribution system. The goal of this effort was to increase the amount of water quality data available so that operators could make targeted, measurable improvements to the system on an ongoing basis, while planning for the 2026 Willamette Water Supply System Integration (WWSSI). This presentation will demonstrate how this multi-year effort has utilized staff from multiple departments to make improvements to both short-term and long-term water quality in the distribution system. The presentation will provide an overview of the general approach to optimization and will discuss some of the task force’s successes and challenges.</p>
11:25-12:25 PM	17	<p style="text-align: center;">PFAS Mitigation - Lessons Learned from a Regional Water Provider <i>Marshall Meyer</i> <i>Lakewood Water District</i></p> <p>Like many water systems, Lakewood Water District has detected PFAS in multiple groundwater sources. In order to mitigate impacts of PFAS on the water system, Lakewood has taken several steps including developing a comprehensive strategy to treat or replace impacted water sources. The presentation will cover the considerations, schedule and real-life experience of the District as it has developed and is implementing its PFAS mitigation strategy including a combination of new wells and two GAC treatment systems.</p>

1:10-2:10 PM	18	<p style="text-align: center;">Modified Tracer Testing Methodology for Long Detention Times <i>Andrew Nishihara</i> <i>Stantec</i></p> <p>Tracer testing can be difficult to perform on large reservoirs or clear wells. Having a place to put water or being able to run a WTP at rates needed to prove out hydraulic efficiency may not be feasible. This presentation will provide an overview of tracer testing, and provide case studies where abbreviated tracer testing was performed that shortened testing by over half the time traditional testing would require. Modified method used was discussed and vetted with approving regulatory authorities.</p>
2:15-3:15 PM	19	<p style="text-align: center;">Emerging Contaminants in Drinking Water <i>Gregg Baird</i> <i>Oregon Health Authority</i></p> <p>This presentation will provide an overview of emerging contaminants in drinking water including those that are of particular concern in Oregon.</p>
3:30-4:30 PM	20	<p style="text-align: center;">Seeing Purple: Design and Construction of the City of Beaverton's Non-potable Water System for Municipal Irrigation <i>Jason Melady</i> <i>Summit Water Resources</i></p> <p>The City of Beaverton initiated the formation of a non-potable water utility to provide irrigation supply to the rapidly developing area referred to as South Cooper Mountain. The non-potable utility capitalizes on previous investments made by the City in its successful aquifer storage and recovery (ASR) program to provide a cost-effective supply of water for irrigation that would otherwise be derived from the City's limited drinking water supplies. Additionally, the non-potable system will use treated wintertime residential stormwater through an innovative treatment process and stored in the subsurface via ASR to augment the irrigation supply and enhance summertime streamflows. The presentation will cover major progress and achievements to-date including overall system design and integration with the site, construction of stormwater treatment and ASR pump station facilities, and operation and maintenance considerations. The facility is scheduled to be operational in 2023.</p>

NEXT STEPS



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