

Monday Room 111BC	Monday Room 205
Session 01A: Water Reuse - Goble Sampson	Session 02A: Social Equity
10:30AM - 11:10AM - Sustainability Protecting Local Water Supplies By Recharging Aquifers With MBR Effluent	10:30AM - 11:10AM - Advancing Equity Within Different Organizational Cultures
11:15AM - 11:55AM - Predicting Drainage in North Idaho Forest Water Reclamation Facilities	11:15AM - 11:55AM - Getting Specific on Equity in a Project Plan and Aligning a Team: Why Common Language isn't Enough?
Session 01B: Utility & Asset Management	Session 02B: Collection Systems - Pumping - Leeway Engineering
1:15PM - 1:55PM - The Evolved Water Professional: Leveraging Integrated Data to Address Megatrends	1:15PM - 1:55PM - Can Companies Compute Cost Conscious CFD?
2:00PM - 2:40PM - Selection and Development of a New Data Management Tool	2:00PM - 2:40PM - Adding Another Level of Redundancy to Influent Pumps at Vancouver Westside Wastewater Treatment Facility
Session 01C: Planning	Session 02C: Facility Operations & Maintenance
3:00PM - 3:40PM - City of Spokane System- Wide Wastewater and Stormwater Risk Assessment	3:00PM - 3:40PM - Adapting to Rapid Growth at a Decentralized MBR Plant
3:45PM - 4:25PM - Getting to the POINT of Nutrient Limits: An Interactive Planning Tool	3:45PM - 4:25PM - Chemical Contingencies for the Supply Chain of the Future
4:30PM - 5:10PM - Tualatin River 2013 - 2020 Water Quality Model Development and Calibration	4:30PM - 5:10PM - Nitrogen Removal Optimization at Bellingham

Monday Room 207	Monday Room 206A
Session 03A: Treatment Phosphorous	Session 04A: Facility Operations & Maintenance
10:30AM - 11:10AM - Online Phosphorus Stability Analyzer: Quantifying the Risk of BPR Upset	10:30AM - 11:10AM - Why My Brand-New Equipment Shakes, Rattles, and Rolls
11:15AM - 11:55AM - Toward Reducing Nonpoint Phosphorous Discharges: A Novel, Commodity-driven Process for Recovering Phosphorous from Dairy Manure	11:15AM - 11:55AM - Focus on Affordability: A Creative Approach to Increasing Hydraulic Capacity
Session 03B: Innovative Stakeholder Involvement	Session 04B: Facility Operations & Maintenance
1:15PM - 1:55PM - Yikes! More Clogged Pipes? Using Social Marketing to Improve System Outcomes	1:15PM - 1:55PM - Flow Predictive Models Using Natural Intelligence and Human Learning
2:00PM - 2:40PM - Building Support for a Clean Water Future	2:00PM - 2:40PM - How Can You Manage Your Peak Wet Weather Flows with Treatment?
Session 03C: Construction & Alt Delivery - Stantec	Session 04C: IWM/Funding
3:00PM - 3:40PM - How Progressive Design-Build Revives 100+ Year-Old Water Mains	3:00PM - 3:40PM - Innovative Strategy and a Case Study for Implementing Watershed Nutrient Management: The Full Scale Program
3:45PM - 4:25PM - Mitigating Financial & Technical Risk through Energy Savings Performance Contracting (ESPC)	3:45PM - 4:25PM - Funding 101: How to Navigate the Process and Develop Strategies to Secure Funding
4:30PM - 5:10PM - That's a Fact: Alternative Delivery Means Alternative Value Engineering Approaches, for Real Savings and Value Added	4:30PM - 5:10PM - Financing City of Boise Water Renewal Facilities: A Case Study On One City's Experience With Capital Funding Strategies And Options For the Community

Monday Room 206B	Monday Room 206C
Session 05A: Collection Systems - Pumping - PumpTech	Session 06A: Stormwater - Design
10:30AM - 11:10AM - Pumping to Greater Heights: BES' Collaborative and 3DBIM-Driven Pump Station Upgrades	10:30AM - 11:10AM - Stormwater Parks: A New Model for Regional Retrofits
11:15AM - 11:55AM - Challenges of Installing a Wastewater Pump Station over an Artesian Aquifer	11:15AM - 11:55AM - Designing with Maintenance in Mind
Session 05B: Regulatory Challenges	Session 06B: Treatment - Phosphorous
1:15PM - 1:55PM - Feasibility and Cost of Compliance with Washington Human Health Criteria Water Quality Criteria (HHWQC)	1:15PM - 1:55PM - The Impact of Anaerobic Mass Fraction on EBPR Performance and Robustness
2:00PM - 2:40PM - Occurrence of Per-and Polyfluoroalkyl Substances in U.S. Water Resource Recovery Facilities	2:00PM - 2:40PM - Achieving Low Level Effluent Phosphorous - Lessons Learned from Early Adopters
Session 05C: Collection Systems - I&I	Session 06C: Treatment - Nutrient Removal - Murraysmith
3:00PM - 3:40PM - Crossing the Line: I/I Impacts After Lateral Improvements on Private Property	3:00PM - 3:40PM - Maximum Wastewater Operation - Total Inorganic Nitrogen Tools to streamline and data for success
3:45PM - 4:25PM - Correcting Infiltration and Inflow in the Colfax, WA Sanitary Sewer System guided by Temperature Monitoring	3:45PM - 4:25PM - Guidelines for Optimizing Nutrient Removal Plant Performance
4:30PM - 5:10PM - The Sewer Whisperer: "Listen Carefully, Your Sewer is Talking to You"	4:30PM - 5:10PM - Which Ones Do You Need? Nitrogen Removal Optimization Ideas and Case Studies

Monday Room 206D	Monday Room 202ABC
Session 07A: Treatment - Biosolids - BHC Consultants/Parametrix	Session 08A: Innovative Stakeholder Involvement Treatment Equipment Company
10:30AM - 11:10AM - Design of Pocatello's Biosolids Reuse and Recovery	10:30AM - 11:10AM - The City as a Stakeholder in Holistic Approach to Distributive Infrastructure Management
11:15AM - 11:55AM - Is a Thermal Hydrolysis Process (THP) the Right Solution for Your Facility?	11:15AM - 11:55AM - Promising Research on Eliminating PFAS and PFOA using Pyrolysis Process
Session 07B: Treatment	Session 08B: Workforce Development
1:15PM - 1:55PM - PowerBI and Piloting: Monitoring Micro-Aeration for H2S Control at Chambers Creek	1:15PM - 1:55PM - Neurodiversity in the Workplace: Applying Universal Design to Cultural Difference
2:00PM - 2:40PM - Full-Scale implementation of Membrane Aerated Biofilm Reactor (MABR) for process intensification of WWTP upgrades	2:00PM - 2:40PM - Implementation of a Community Benefits Agreement Brings Subcontracting and Workforce Diversity on the City of Portland's Secondary Treatment Expansion Program
Session 07C: Treatment - Nutrient Removal	Session 08C: Treatment - Nutrient Removal
3:00PM - 3:40PM - Fermentation or Chemical Feed? Evaluating Carbon Addition at the Meridian WWRD	3:00PM - 3:40PM - Permitting Expectations And Strategies For Efficient Project Development
3:45PM - 4:25PM - Upgrading Lagoon Based Treatment Systems to Meet More Stringent Limits for BOD, TSS and Nutrient Removal	3:45PM - 4:25PM - From Chaos to Control: Boise's New, Robust Project Delivery Model
4:30PM - 5:10PM - Process Intensification Using Low Dissolved Oxygen Biological Nutrient Removal	NA - DO NOT PUT ANYTHING HERE

Tuesday Room 111BC	Tuesday Room 205
Session 09A: Treatment - Nutrient Removal	Session 10A: Regulatory Challenges
8:00AM - 8:40AM - Using Kenaf for Densification and Winter Nitrification	8:00AM - 8:40AM - Developing An Alternative To A Point Source Based Approach To Regulating Nutrients in Puget Sound
8:45AM - 9:25AM - Compounding Interest: Building Your Way to Better Nutrient Removal Performance	8:45AM - 9:25AM - Water Sector Federal Cybersecurity Legislation 2022
Session 09B: Treatment - Nutrient Removal Carollo	Session 10B: Risk Assessment & Emergency Response Plan
10:15AM - 10:55AM - Using IFAS at the Bend WRF to Provide an Effluent TN less than 3mg/L	10:15AM - 10:55AM - Improved Cyber-Defense for the Water/Wastewater Sector
11:00AM - 11:40AM - Streamlined Process Selection Helps Utilities Meet Stringent Nitrogen Limits	11:00AM - 11:40AM - Wastewater Surveillance as an Emergency Response to Infectious Disease Outbreaks
Session 17A: Collection Systems - Planning	Session 18A: Utility & Asset Management
1:15PM - 1:55PM - Preliminary Design & Outreach for Replacement of an Aging Wastewater Lake Line	1:15PM - 1:55PM - Doing More With Less: Adaptable Tools for Prioritizing System Repairs
2:00PM - 2:40PM - Making Sense of It All: A User-Friendly Visualization Tool to Analyze Model Results	2:00PM - 2:40PM - 360-Degree Cameras: A New Vantage on Water/Wastewater Infrastructure
Session 17B: Collection Systems - Stakeholders	Session 18B: Facility Operations & Maintenance
3:00PM - 3:40PM - An Update on Bend's Citywide Septic to Sewer Program	3:00PM - 3:40PM - Your Other Permit: Air Contaminant Discharge Permits for Water Resource Recovery Facilities
3:45PM - 4:25PM - How to Put a Pipe Through a Nature Park: Partnership and Communication	3:45PM - 4:25PM - Getting More for Less: The Benefits of Process Optimization

Tuesday Room 207	Tuesday Room 206A
Session 11A: WaterReuse	Session 12A: Stormwater
8:00AM - 8:40AM - National Water Reuse Action Plan	8:00AM - 8:40AM - Advances in Infiltration Testing for Stormwater Management
8:45AM - 9:25AM - Cheney Washington's Purple Pipe Project	8:45AM - 9:25AM - Sharp Avenue Permeable Pavements - A Stormwater Treatment Study
Session 11B: Stormwater	Session 12B: WaterReuse
10:15AM - 10:55AM - Where Does Deep Infiltration Make Sense in The Northwest?	10:15AM - 10:55AM - Advancing State Level Reuse Policy with Grass Roots Efforts (OR)
11:00AM - 11:40AM - Quantifying the Accuracy of Rainfall Spatial Interpolation Techniques	11:00AM - 11:40AM - Oregon Case Study - TBD
Session 19A: Construction & Alt Delivery	Session 20A: WaterReuse
1:15PM - 1:55PM - Strategies for Managing Supply Chain Issues and Cost Escalation	1:15PM - 1:55PM - City of Boise Recycle Water Program - Start Up (Phase 1)
2:00PM - 2:40PM - Words every Engineer love, but Commissioning Managers dread... "Largest installation ever" / "Full System Integration" / "First of its kind"	2:00PM - 2:40PM - Onsite Non-Potable Water System Rule (WA decentralized reuse)
Session 19B: WaterReuse	Session 20B: Resiliency
3:00PM - 3:40PM - LOTT Reclaimed Water Infiltration Study - Start to Finish	3:00PM - 3:40PM - Using Elutriation to Calculate the Particle Size Distribution in Effluent
3:45PM - 4:25PM - Reuse Regulator Session and Q&A (WA, OR, ID, TBD) Will end at 4:45PM	3:45PM - 4:25PM - The Tools to Combine Co-digestion with Existing Infrastructure to Fight Climate Change

Tuesday Room 206B	Tuesday Room 206C
Session 13A: Collection Systems - Condition Assessment	Session 14A: Facility Operations & Maintenance
8:00AM - 8:40AM - Utilizing Acoustics To Enable Condition Based Maintenance in Gravity Sewer Systems	8:00AM - 8:40AM - Improved Filterability and Energy Savings with Mg(OH) ₂ Addition
8:45AM - 9:25AM - Smart Pigging of Sewer Force Mains for Condition Assessment	8:45AM - 9:25AM - Research Informed Operations & Maintenance Practices for Stormwater BMPs
Session 13B: Collection Systems - Pumping	Session 14B: Facility Operations & Maintenance
10:15AM - 10:55AM - "Post-COVID-19 Modern Trash Loading Proves Sewage Pump Clog Resistance Can Not Be Predicted By Impeller Throughlet Size"	10:15AM - 10:55AM - Chlorine Supply Challenges in the Portland Metro: Lessons Learned and Collaboration
11:00AM - 11:40AM - Safety Is No Accident -- Pump Station Safety And Design	11:00AM - 11:40AM - Making Your Microbest Work for You - The Automation of Anaerobic Digestion
Session 21A: Facility Operations & Maintenance	Session 22A: Resiliency
1:15PM - 1:55PM - Developing a Bench Scale Test to Evaluate Operational Digestion Stability and Capacity	1:15PM - 1:55PM - Hitting the Curve Balls - A Water Resiliency Framework that Integrates Utility Investments, Communications, and Decisions Making
2:00PM - 2:40PM - Troubleshooting a Process Upset: Experience at Portland's CBWTP	2:00PM - 2:40PM - Implementing Resiliency - Moving from Aspiration to Reality
Session 21B: Construction & Alt Delivery	Session 22B: Utility & Asset Management
3:00PM - 3:40PM - Navigating Supply Chain Disruptions and Inflation with Estimating and Scheduling	3:00PM - 3:40PM - Programmatic Delivery of Pipe Replacement to Minimize Risk for Least Cost
3:45PM - 4:25PM - Carmel Area Wastewater District WWTP Rehabilitation and Replacement Projects	3:45PM - 4:25PM - Resource Constrained? A Case Study on EconH ₂ O for Capital Program Planning

Tuesday Room 206D	Tuesday Room 202ABC
Session 15A: Treatment - Industrial Pretreatment - RH2	Session 16A: Risk Assessment & Emergency Response
8:00AM - 8:40AM - Effectiveness of Targeted Monitoring and Outreach Programs to Reduce PFAS in Influent	8:00AM - 8:40AM - Cyber-Resilience Through Manual Operations - Engineering and Operations Lessons Learned
8:45AM - 9:25AM - Two Decade Evolution of Industrial Stormwater Treatment at Vigor Shipyards, Seattle	8:45AM - 9:25AM - Monitoring Spatial and Temporal SARS-CoV-2 Burden via RT-ddPCR
Session 15B: Treatment - Aeration	Session 16B: Construction & Alt Delivery
10:15AM - 10:55AM - Full-scale Demonstration of Energy and Carbon-efficient BNR	10:15AM - 10:55AM - Incentivizing Partnerships for Green Stormwater Infrastructure in Seattle
11:00AM - 11:40AM - Solar Powered Floating Aerated Fixed Film Modules for BOD Treatment and Nutrient Removal in Wastewater Lagoons	11:00AM - 11:40AM - Finding the Silver Bullet
Session 23A: Treatment - Nutrient Removal	Session 24A: Treatment - Digital Tools
1:15PM - 1:55PM - Commissioning And Startup Of The First Full-Scale Sidestream Treatment System In The Western U.S.	1:15PM - 1:55PM - Sludge Characterization and 3-D Computer Analysis for Large New Secondary Clarifiers
2:00PM - 2:40PM - IFAS Media for Single Tank Nitrification/Denitrification	2:00PM - 2:40PM - Is The Northwest Ready For Digital Twins? Giving Operators One System With All the Information They Need to Make Real-time Operational Decisions And Optimize The Treatment Process.
Session 23B: Treatment - Energy	Session 24B: Treatment - Sidestream
3:00PM - 3:40PM - Hydrogen Fuel From Biogas - Future or Not?	3:00PM - 3:40PM - Ultra Fast Startup and Robust Operation of North America's First Complete Granular Sludge Deammonification System
3:45PM - 4:25PM - Net-Zero WRRF Goes Carbon-Negative via Innovative Public Private Partnerships	3:45PM - 4:25PM - InFLOW - Introducing Future Leaders of Water

Wednesday Room 111BC	Wednesday Room 205
Session 25A: Leadership	Session 26A: Collection Systems
8:00AM - 8:40AM - Utility Leadership: What I Wish I Had Known	8:00AM - 8:40AM - Breathing life into Retired Infrastructure for Wet Weather Storage
8:45AM - 9:25AM - Leadership Lessons in Unexpected Places	8:45AM - 9:25AM - City of Bellevue Pipe Defect Evaluation and Trenchless Repairs
9:30AM - 10:10AM - Leadership Panel: Evolving Leadership in an Evolving World	9:30AM - 10:10AM - Teamwork Overcomes Challenging Site Conditions in Major Utility Replacement
Session 25B: Resource Recovery	Session 26B: Stormwater - Quality
10:30AM - 11:10AM - Case Study: Improving Plant Performance by Eliminating Sidestream Phosphorus Loads	10:30AM - 11:10AM - Treating Phosphorus in Stormwater - Using Current Data to Design for Success
11:15AM - 11:55AM - Sustainable Solutions: Regional Resource Recovery in Central Oregon	11:15AM - 11:55AM - Assessing Water Quality Improvement At the Carli Creek Regional Stormwater Project
	1:00PM - 5:00PM Workshop

Wednesday Room 207	Wednesday Room 206A
Session 27A: Construction & Alt Delivery	Session 28A: Innovative Stakeholder Involvement
8:00AM - 8:40AM - Supply Chain Market Outlook and Risk Mitigation Strategies	8:00AM - 8:40AM - Strategies for Engaging Residents in Private-Side Service Line Inventories
8:45AM - 9:25AM - Staying Ahead of Traffic - Fast-Tracking a Sewer Design in Advance of Highway Expansion	8:45AM - 9:25AM - Bringing Everyone To The Table: Engaging Large Stakeholders Groups for Basin Planning
9:30AM - 10:10AM - Managing Large Storm Flows in Urban Spaces	9:30AM - 10:10AM - Indigenous Community Collaboration: An Investment in Our Collective Futures
Session 27B: Treatment - Biosolids	Session 28B: Facility Operations & Maintenance
10:30AM - 11:10AM - KIS Plan for Meeting Total Phosphorous Limits and Biosolids	10:30AM - 11:10AM - A New Standardized On-Site Capture Efficiency (SCR) Sampling & Testing Protocol for WWTP Screens
11:15AM - 11:55AM - Pivoting into a Sustainable Class A Biosolids Management Program	11:15AM - 11:55AM - Protecting and Preserving a Concrete Jungle
	1:00PM - 5:00PM Workshop

Wednesday Room 206B	Wednesday Room 206C
Session 29A: Resource Recovery	Session 30A: Planning
8:00AM - 8:40AM - The Challenges and Benefits of Renewable Natural Gas Production - An Oregon Story	8:00AM - 8:40AM - Bellevue Watershed Management Plan Development
8:45AM - 9:25AM - Gassy Decisions - Idaho Falls Wastewater Biogas Beneficial Use	8:45AM - 9:25AM - A Decision Model for Resilient Communities: Flood Risk, Ecosystems Services, and Property Values
9:30AM - 10:10AM - When you have Too Much Digester Gas - The Role of Storage and Balancing Supply and Demand	9:30AM - 10:10AM - Water Resource Recovery Facilities...It Isn't Simply Wastewater Treatment and Disposal Anymore
Session 29B: Collection Systems - Planning - HDR	Session 30B: Climate Science
10:30AM - 11:10AM - Collection System Yoga - How Post Falls Flexibly Balanced Growth and Budget Constraints	10:30AM - 11:10AM - Climate Adaptation and Combined Sewer Overflow Infrastructure: State of the industry
11:15AM - 11:55AM - Maximizing Return on Investment by Optimizing and Prioritizing Capital Improvements	11:15AM - 11:55AM - Too Hot! Thermal Modeling for NPDES Temperature Mitigation
1:00PM - 5:00PM Workshop	1:00PM - 5:00PM Workshop

Wednesday Room 206D	Wednesday Room 202ABC
Session 31A: Treatment - 101	Session 32A: Treatment
8:00AM - 8:40AM - Coagulant/Polymer 101: Fundamentals of Sedimentation and Dewatering	8:00AM - 8:40AM - New Grit Management System Makes Immediate Improvements
8:45AM - 9:25AM - It Doesn't Have to Stink: Wastewater Odor Control 101	8:45AM - 9:25AM - First North American Installation of an Adaptive Clarifier Inlet
9:30AM - 10:10AM - High Solids Digestion for Resource Recovery, Energy Resiliency and Revenue	9:30AM - 10:10AM - An Alternative to the SRT for Sequencing Batch Reactor Design and Operation
Session 31B: Treatment - Industrial Pretreatment	Session 32B: Social Equity
10:30AM - 11:10AM - Using FTIR Technology to Quantify Gas Emissions in Conveyance Systems	10:30AM - 11:10AM - Supporting a City for Everyone with DEI and Recycled Water
11:15AM - 11:55AM - Aeration & Mixing in Industrial Wastewater	11:15AM - 11:55AM - DE&I: Where Are We? Where Can we go from Here?
1:00PM - 5:00PM Workshop	