

PNWS-AWWA Membrane Workshop

Tuesday, September 24th, 2024

Course Outline/Schedule

7:30 to 8:30 - Gathering and networking

8:30 to 9:00 – Introduction/Overview:

Bryan Black (Stantec) and Brian Rowbotham (Stantec) - Membrane Filtration WTP Design: Two Decades of Pacific NW Lessons Learned/Membrane Filtration System Trends

9:00 to 11:00 – Design and Membrane Treatment

Rich Franks (Hazen and Sawyer) - Current Trends Toward Universal, Low Pressure Membrane Racks Based on the Recent Upgrade of a 6 MGD Ultrafiltration System in Southern California

Eric Hull (Wilson Engineering) – Design of a new surface water membrane filtration facility for a small public water system

Dan Hugaboom (Carollo) – Bench Scale Testing for Membrane Pretreatment Optimization

Danielle Philbrick (Stantec) – Use of Membranes in Wastewater Reuse

11:00 to 11:30 Drinking Water Regulations

Keith Male (OHA)

11:30 to 12:30 Lunch

12:30 to 1:30 Operation of Membrane Systems

Sanyukta Gokhale (HDR) - Desalination in Point Hope: Redundancy in a Reverse Osmosis System for a Remote Village North of the Arctic Circle

Paul Mueller and Humberto Jaramillo (Jacobs) - Maintenance Cleans and Clean-in-Place Procedures to Keep a Robust Membrane System

1:30 to 2:30 Utility Perspective and Case Studies

**Adam Smith (Grants Pass) - Filtering the Options in Grants Pass
and Jeremy Lustig (City of Kennewick) Case Study: City of Kennewick**

Anticipated Learning Outcome

Participants in this course will learn about regulations, evaluation, design, and operation of membrane technologies to treat water and wastewater in the Northwest. The workshop will focus on the following drinking water and wastewater treatment technologies: microfiltration, ultrafiltration, reverse osmosis, and membrane bioreactors.

Speaker Info

- Bryan Black – PE, Regional Practice Leader for Water at Stantec

- Presentation Title: Membrane Filtration WTP Design: Two Decades of Pacific NW Lessons Learned.
 - Professional Qualification: MS Environmental Engineering University of North Carolina – Chapel Hill; BS Civil Engineering University of Texas at Austin; Registered Engineer Oregon, Washington, Idaho.
 - Bio - Bryan has been working on membrane water treatment plant designs in the Pacific Northwest for the last 24 years. He has membrane design projects in Washington, Oregon, Idaho, and Montana. During backcountry hikes with his wife and two dogs, Bryan pumps water through a ceramic membrane filter rather than relying solely on ultraviolet light disinfection.
- Brian Rowbotham – Stantec, Project Engineer
 - Presentation Title: Membrane Filtration WTP Design: Two Decades of Pacific NW Lessons Learned/Membrane Filtration System Trends
 - Professional Qualification: Brian received an undergraduate degree in Civil Engineering from Washington State University and a M.S in Environmental Engineering from Oregon State University and holds professional engineering licenses in Colorado and Oregon.
 - Bio - After graduating from WSU Brian spent just under a year working for Spokane County's Engineering Department overseeing construction of sewer lines throughout the County. After graduating from Oregon State University in 2014 Brian has worked as a design consultant with his primary focus being design of potable water systems for small and large clients throughout Colorado and the Pacific Northwest and currently has been with Stantec for 2 years. When he's not working you can usually find Brian chasing his two young kids or out somewhere riding or racing his mountain bike throughout Oregon.
- Humberto Jaramillo – Jacobs, Project Engineer
 - Presentation Title: Is Membrane Technology Right for my Utility?
 - Professional Qualifications: PhD, EIT
 - Bio – Humberto is a water treatment engineer with more than six years of experience in industry specialized in membrane technology, piloting, and startup and commissioning. His PhD was focused on reverse osmosis membranes.
- Rich Franks – Senior Associate, Hazen and Sawyer
 - Presentation Title: Current Trends Toward Universal, Low Pressure Membrane Racks Based on the Recent Upgrade of a 6 MGD Ultrafiltration System in Southern California

- Professional Qualifications: Over 23 years of experience with a leading membrane manufacturer directing applications and technical support for reverse osmosis, nanofiltration, and ultrafiltration projects.
- Bio - Mr. Franks has over 23 years of experience with a leading membrane manufacturer directing applications and technical support for reverse osmosis, nanofiltration, and ultrafiltration projects. He currently serves as a Senior Associate in Hazen's Membrane Practice Group, where he supports the design and operation of membrane systems for Hazen clients.
- Dan Hugaboom– Carollo, Project Engineer
 - Presentation Title: Bench Scale Testing for Membrane Pretreatment Optimization
 - Professional Qualifications: Former President Northwest Membrane Operators Association (2017-2019); Professional Engineer, Idaho; MS Clarkson University 2000, BS Worcester Polytechnic Institute 1996.
 - Bio - Dan is Chief MF/UF Membrane Technologist with Carollo Engineers, where he directs technical aspects of the firm's membrane projects.
- Eric Hull – Project Engineer, Wilson Engineering
 - Presentation Title: Case study on design of a new surface water membrane filtration facility for a small public water system
 - Professional Qualifications: Professional Engineer licensed in Washington State, license number 24003110
 - Bio - Eric Hull is a project engineer at Wilson Engineering where he plans, designs, and implements upgrades to water system infrastructure. He has a BS & MS in Environmental Engineering from Montana Tech where he focused on membrane distillation as a novel treatment for mine drainage. He has been practicing engineering for 5 years and has expertise in conceptual design, 3D renderings, planning, water treatment, piping, pumping, and storage.
- Danielle Philbrick – Stantec, Project Engineer
 - Presentation Title: Use of Membranes in Wastewater Reuse
 - Professional Qualifications: BS in Environmental Engineering at University of New Hampshire, Registered EIT
 - Bio - Danielle is a process engineer-in-training working on water and wastewater projects in the Pacific Northwest. She has been working for Stantec for the past 3 and a half years. Her experience ranges from facility planning to full-scale plant design and operation. Over the past 3 years, Danielle has worked on the design of 4 membrane drinking water treatment plants.
- Keith Male – Oregon Health Authority, Engineer

- Presentation Title: OHA Membrane Filtration Rules and Requirements
- Professional Qualifications: PE
- Bio - Keith Male, PE, has worked in engineering roles for 10 years, with over 4 years in the drinking water industry. He started working at Oregon Health Authority in 2022 after completing his master's degree in environmental engineering at Portland State University. Before moving to Oregon in 2017, Keith worked in the Corrosion Control & Metallurgy team for the regional wholesaler, Metropolitan Water District of Southern California, the largest supplier of treated water in the United States. Outside of work, Keith is an avid fisherman and enjoys spending time outside with his family.
- Sanyukta Gokhale – HDR, Project Engineer
 - Presentation Title: Desalination in Point Hope: Redundancy in a Reverse Osmosis System for a Remote Village North of the Arctic Circle.
 - Professional Qualifications: PE
 - Bio - Water/Wastewater Engineer with 7 years of experience in treatment and conveyance. Sanyukta has a Bachelors from Purdue University.
- Paul Mueller – Jacobs, Project Engineer
 - Presentation Title: Maintenance Cleans and Clean-in-Place Procedures to Keep a Robust Membrane System
 - Professional Qualifications: Professional Engineer
 - Bio: Principal process engineer with more than 35 years of worldwide experience specialized in membrane processes including membrane filtration and reverse osmosis with an extensive knowledge directing piloting and full scale operations.
- Adam Smith, City of Grants Pass Public Works Department, Water Treatment Division Superintendent.
 - Presentation Title: Filtering the Options – Technology Selection for Grants Pass Water Treatment Plant
 - Professional Qualifications:
 - 2020- Present: Water Treatment Division Superintendent.
 - 2010-2017: Water Treatment Plant Operator for County of Maui
 - 2006-2010: Field Biology for Oregon Department of Fish and Wildlife.
 - B.S. Environmental Science Oregon State
 - A.S. Hardwar Engineering Oregon Institute of Tech.
 - A.S. Software Engineering Oregon Institute of Tech.
 - Oregon Water Treatment IV Certification
 - Oregon Water Distribution I Certification
 - Have Presented at AWWA regional conference and Subsection Short School.

- Bio: Grew up in a small Oregon logging community where natural resources were very important, spent most of my life recreating and working with natural resources, especially water resources. Tried my hand at computer engineering only to learn that I was not as passionate about computers as I thought, so I returned to natural resource management. Started in water treatment with the County of Maui where I found I could apply both my passion and skills in water resources and technology. After the birth of my two beautiful daughters, my wife and I decided to return to Oregon to raise our family where we could give back to the type of small community we grew up in
- Jeremy Lustig, City of Kennewick, Deputy Public Works Director
 - Presentation Title: Case Study: City of Kennewick
 - Professional Qualifications: He has over 25 years of experience and is a registered professional engineer in Washington and Nevada. He also has a water distribution WDM4 and water treatment WTPO4 certifications in Washington.
 - Bio: Jeremy has been with the City of Kennewick, WA since 2016 and is currently the Deputy Public Works Director. Prior to that, he worked for the City of Henderson, NV for 15 years, the Las Vegas Valley Water District, and in consulting as a design engineer focusing on water and wastewater infrastructure projects.