

Making Wise Investments with the Help of Odor Master Planning

Abstract

This presentation provides an overview of the approaches taken in an odor control master planning effort and how the master plan can help the utilities make the wise decisions to achieve the maximum odor control benefit with the minimum costs. Five processes of the master planning, goal setting, field investigation, desktop analysis, alternative development and evaluation, and plan development will be discussed in more details with tools, technologies and project examples.

Presenter: Miaomiao Zhang

Presenter: Miaomiao Zhang, PE PMP
Title: Principal Engineer
Organization: Murraysmith
Email: Miaomiao.Zhang@murraysmith.us

Professional Background: Miaomiao Zhang is a principal engineer with Murray Smith in Bellevue, WA. She has 18 years of experience on water, wastewater and odor control facility planning and design. She has worked as a process engineer, task lead or project manager on a wide range of water and wastewater projects for the municipal clients in Washington, Idaho, Hawaii and Alaska. Her expertise on odor control area includes extensive field sampling, pilot testing and emission and dispersion modeling; odor control master planning; and design of odor control system with various technologies (carbon, bio filter, bio scrubber and chemical scrubbers). Miaomiao has a Master's degree from the University of Washington's Department of Civil and Environmental Engineering. She is the vice chair of sustainability committee and a past chair of Odor and Air Quality committee within PNCWA.

Ammonia Limits and Lagoons: Getting the Most from Investment in Your Existing Treatment

Abstract

Ammonia limits are in place in nearly every corner of North America, and for good reason. But in small and medium sized communities - like Big Timber, Vaughn, and Fromberg, Montana - who rely on lagoon-based wastewater treatment that was never designed for nitrification, operators and their consulting engineers may not be certain of what works and what doesn't. After all, it's not just about achieving compliance under ideal circumstances; it's about sleeping well at night knowing your treatment plant is going to beat these limits consistently and without upset.

This presentation will cover the basics of lagoon nitrification failure, particularly related to cold lagoon effluent that can fall to <34°F in winter. For unaerated lagoons that freeze over, a chief cause will be lack of oxygen, and for the benefit of those sites this presentation will briefly cover the requirements for properly aerating a lagoon. However, beyond simply a lack of oxygen, causes of lagoon nitrification failure range from reduced bacterial metabolism and reproduction to increased competition for relatively minimal attached-growth surfaces. The presentation will also explore the validity of options that purport to beat those limits year-round, including simple attached-growth systems, recent developments in MBBR-based technologies, as well as SAGR post-lagoon nitrification. It will cut through marketing noise to discuss the common pitfalls that accompany technology pilots and what factors are critical to interpreting data and setting full-scale treatment expectations. Further, it addresses the question of inevitable nitrate limits and fears surrounding emerging contaminants, and how lagoon-based WWTPs are uniquely suited to address them.

The presentation will offer case study-based design considerations for upgrading lagoons for cold-water nitrification, including evaluating how resilient upgrades are in the face of highly-fluctuating ammonia levels, industrial-strength wastewater, rapid temperature drops, and even unexpected operator changes. These conclusions will be drawn from the experience of hundreds of lagoon upgrades over the last 20 years, including the Kennard, Indiana wastewater treatment plant, where Commonwealth Engineers, Inc. chose to implement the SAGR technology to retain the existing lagoon infrastructure and treat the 0.1 MGD design flow so the plant can beat its 1.5/3 mg/L (summer/winter) ammonia limits.

The presentation will offer insight into the engineers' decision-making process, specifically citing the Big Timber, Vaughn and Fromberg sites, and what made SAGR technology the logical solution for their issues. The presentation will also touch on the various challenges that were presented, and overcome, during the processes of implementing the SAGR at the sites. The presentation also draw on the data collected from the first few months of operation at each site, as well as the years of data collected from the Kennard site explaining why, even in the face of their ammonia limit, their operators sleep easy. The data shows that since commissioning in 2014, the Kennard's ammonia levels have consistently measured well below that limit, averaging 0.17 mg/L while also producing BOD levels averaging 1.9 mg/L and TSS levels averaging 4.9 mg/L.

Presenters: Jeremy Jensen and CJ Strain

Presenter: **Jeremy Jensen, P.E.**
Title: Sales Representative
Organization: isiWest
Email: jjensen@isiwest.com

Professional Background: Jeremy Jensen has worked in the water and wastewater industry for the past fourteen years in research, testing, consulting, and equipment sales roles. He developed an appreciation for water while working at the Utah Water Research Laboratory before completing his graduate studies in Civil Engineering at Utah State University in 2008. He is a licensed professional engineer in both Utah and Idaho and is currently a sales representative for isiWEST, serving the Utah and Southern Idaho markets for the past five years.

Jeremy has been active in multiple professional organizations, serving as president of the Northern Utah Branch of the Utah ASCE Section, member of three young professional committees in Utah and Idaho, member of the awards committee for the Pacific Northwest Clean Water Association (PNCWA), secretary/treasurer of the Southeast Idaho Operator Section of the PNCWA, and most recently as the membership engagement committee chair of the AWWA Intermountain Section.

Jeremy loves spending time with his wife and six children. Some of his favorite activities are skiing, swimming, and kayaking in the lakes and mountains near his home.

Presenter: **CJ Strain**
Title: Filtration Product Manager
Organization: Nexom
Email: cstrain@nexom.com

CJ (Cornelius) Strain, P.E., is Nexom's Product Manager, Filtration. He has two decades of professional experience with over twelve years in wastewater process improvement. Mr. Strain has specialized in filtration technologies and nutrient removal applications emphasizing process design optimization, increasing levels of treatment, process sustainability and improvement of conventional treatment economics. He utilizes an applied foundation in the sciences paired with construction experience to provide effective and reliable solutions to today's treatment challenges.

Pre-Fabricated Treatment Systems and Advances MBRs

Abstract

Pre-engineered wastewater treatment systems provide stable operation and flexible process options for small to large flow sanitary and process wastewater applications. The presentation will discuss how tankage systems combine complete aeration, clarification, and advanced treatment, while allowing these unit processes to be individually separated and controlled, including from remote locations. Additionally, the presentation will demonstrate how a system's process zones are structured to provide specific activated sludge processes for desired treatment levels, depending on the type of effluent desired. The presentation will conclude with an in-depth discussion of the MBR (Membrane Bio-Reactor) systems and reuse possibilities on the small scale.

Presentation Outline:

What is considered a small WWTP?

- Why would one need a small WWTP?
- Treatment Options
 - BOD/TSS/Nitrification/Denitrification
 - Terminology
 - Not Nitrifying?
 - How Low?
- Case Study - Arizona
- Small MBRs versus Small Conventional Systems
- Typical Effluents and Installations Photos

Presenter: Ryan Asbury

Presenter: Ryan Asbury
Title: Manager, Municipal Treatment Systems
Organization: Smith & Loveless

Professional Background: Experienced Manager with a demonstrated history of working in the mechanical and industrial engineering industry. Strong information technology professional skilled in Project Management, Water Treatment, Wastewater Equipment, Sales, Customer Relationship Management (CRM), and Sales Operations.

Ryan has a BS in Chemical Engineering from Vanderbilt University and has 12 plus years' experience in Water and Wastewater Equipment with focus on Engineering, Project Management, and Service. During his last 6 years at Smith and Loveless, he has focused on grit removal system and factory built treatment wastewater treatment plants.

In his current position as the manager of municipal treatment systems at Smith & Loveless, Ryan provides representatives engineering and sales support across a broad line of premier wastewater treatment and component process equipment, including grit removal systems, factory-built and field-erected treatment systems, membrane bioreactors, fixed-film systems, extended aeration systems, filtration systems, clarifiers, separators, aeration systems, and sludge reducing technologies.

SCADA in the Cloud

Abstract

This course will aid participants in understanding the differences, benefits, and risks associated with SCADA systems that provide on-line access to Water and Wastewater Supervisory Control Systems with a detailed discussion of On-Line Security methods.

Class Synopsis:

We live in the new world of connectivity where everything seems to be connected to the internet and available on your smartphone no matter where you are... In this class we will explore the good, the bad and the ugly side of connected supervisory controls. What makes one system good versus another? Why would you want to have your system connected to on-line servers? What would you definitely not want connected to the internet and available to be controlled remotely? How do you assure SECURITY for systems as well as Employees? All these questions are valid and a particularly hot topic in today's connected world. This class will present the facts about connectivity and controls and let you decide if connectivity is in your future.

Class Outline:

Traditional SCADA is what it is: Real world inputs like a door closing, a pump running, the temperature of water, etc. are translated into your computer screen and database. Radio's phone lines, and even fiber sometimes make up the foundation of a traditional SCADA system today. Your system is traditional because...

The 'new' SCADA in the cloud: What is the 'cloud'? where is it? How does putting my information 'out there' do me any good? This section explains the nuts and bolts of information connectivity, storage and retrieval that will enable us to evaluate how we might benefit from the new interconnected world of SCADA anywhere, any time...

Every silver lining has a CLOUD: Now that we have spent some time talking about how wonderful immediate, prolific, intentional information might be, let's ask the question; What could go wrong...

Let's talk PRIVATELY about SECURITY: How to prevent an enemy from accessing your system... But first, we must define who the 'enemy' is... Now, let's talk about how to keep the bad guys out while letting the good guys get live and convenient data...

Presenter: Rick Patton

Presenter: **Rick Patton**
Title: Director of Sales and Marketing
Organization: Advanced Control Systems
Email: rick@advancedcontrol.com

Professional Background: Mr. Patton joined ACS in 2010 as Director of Marketing and Sales. Mr. Patton is the face of the company to the industries and communities served by ACS. He enjoys helping clients and working with them to achieve mutual success. In this role he also works to recognize and identify evolving client needs while then helping to formulate offerings that leverage the unique system controls capability that ACS brings. Mr. Patton has a proven track record of success and is known for adding value by partnering with communities and industry associations and being actively involved for their betterment. Mr. Patton has enjoyed 25 successful years in the technical marketing and sales profession and is a BSEE graduate of the University of Idaho.

It's Just Water! Innovative water reuse stories from around the Pacific Northwest

Abstract

All water reuse stories start with communication. Convincing the public, decision-makers and even our own employees to view cleaned water as a resource can be a difficult endeavor, but necessary for any water reuse project to be advanced. This session will highlight innovative ways that utilities in the Pacific Northwest region have engaged their communities to break down barriers and build community support for water reuse. From recycled water beer to a recycled water public wading pool, our region has pioneered innovative ways to use recycled water and spark conversations about how we think about clean water. Attendees will learn about communication sources and strategies available from the WateReuse Association and value of learning from other water reuse practitioners to address the technical, social and political aspects of water reuse. The session will end with an audience discussion of what technical and communication resources would be helpful for the WateReuse Pacific Northwest Section to develop specific to our region.

Presenter: Jacqueline Klug

Presenter: **Jacqueline Klug**
Title: President of WateReuse Pacific Northwest Section
Recycled Water Project Manager, King County Wastewater Treatment Division
Organization: WateReuse Pacific Northwest
Email: Jacque.Klug@kingcounty.gov

Professional Background: Jacque Klug is a project manager for King County's Wastewater Treatment Division in Seattle, Washington, supporting customer development, permitting, capital projects, policy development and communication planning efforts relating to King County's Recycled Water Program. Jacque has worked in the water resource for seventeen years and has experience in policy development, planning and permitting on a variety of water issues including water rights, groundwater management, reclaimed water, instream flows, watershed planning and salmon recovery. Jacque has served as the President of the American Water Resources Association Washington State Chapter and is the current President of the WateReuse Association Pacific Northwest Section. She is a graduate of Duke University and the University of Washington.

Membranes 101

Abstract

Membranes can be used alone, or in conjunction with complimentary technologies, to remove a broad range of contaminants from water. This range of capabilities has contributed to the wide spread use of membranes in wastewater treatment, water recycling/reuse and water treatment.

Micro and ultrafiltration (MF/UF) membranes are used to remove particles as small as viruses (0.01 micron) by size exclusion (sieving). MF/UF membranes are used in membrane bioreactors (MBR) applications, tertiary filtration, and as the primary turbidity removal and disinfection process in drinking water treatment plants. In these applications, MF/UF membranes produce filtered water with turbidities less than 0.1 NTU and 99.99% - 99.9999% of protozoa.

Nanofiltration and reverse osmosis membranes are capable of removing dissolved salts and organic compounds. These membranes are used in potable reuse application for removal of pathogens, salts and synthetic organic compounds. They are also used to remove recalcitrant organic compounds, nutrients and trace metals. Common applications include treatment of industrial wastewaters, effluents discharging into sensitive receiving streams, brackish ground waters and potable reuse applications.

- Proper maintenance of membranes and membrane systems is necessary to maximize system capacity, water quality and life span.
- Backwash and chemical cleaning sequences must be routinely performed to prevent buildup of contaminants on the membrane surface (fouling) and maintain system capacity.
- Membranes must also be tested for breakage by on line and offline methods. Compromised membranes can lead to degraded filtered water quality and failure to meet finished water quality goals.
- Membrane systems are equipment intensive and proper maintenance programs must be in place to maximize life of compressors, blowers, pumps and high cycle valves used in membrane systems.

This presentation will cover how membranes are used in water, wastewater and reuse application and typical operational tasks. Idaho case studies will be highlighted.

Presenters: Dan Hugaboom

Presenter: Dan Hugaboom, P.E.
Title: VP/Chief Technologist
Organization: Carollo Engineers
Email: DHugaboom@carollo.com

Professional Background: Dan is Carollo Engineer's Chief MF/UF Membrane Technologist. In this role, he directs technical aspects of the company's low-pressure membrane filtration based projects. Dan also serves as President of the Northwest Membrane Operator's Association and serves on the Board of Directors for the American Membrane Technology Association focuses on training operators in membrane technology.

Simple System, Complex Permit: How the Southside Water and Sewer District Manages Their Reuse Operation Up-Gradient from Their Drinking Water Well

Abstract

Challenges are diverse for the Southside Water and Sewer District, located along the Pend Oreille River in northern Idaho: groundwater monitoring wells show increased nitrate levels across their reuse site and private drinking water wells are located less than 50 feet away. The District's reuse activities also happen to occur above the aquifer, and up-gradient, from where they draw their drinking water. This presentation focuses on the District's particularly vested interest in protecting groundwater quality while they balance their need for reuse system capacity with public concerns and regulatory requirements. Information on the District's current reuse permit, site loading, regulatory drivers, and public involvement will be presented, including historic nutrient and hydraulic loading information, nitrate data from on-site groundwater monitoring wells, nitrate data from the District's potable water supply groundwater well, and groundwater modeling information.

The review of this reuse permit will provide operators, engineers, municipalities, and regulators involved with the planning, design, or operation of reclaimed water reuse systems an insight into a simple system with a complex reuse permit process. The goal is to provide awareness that concerns of all parties can be addressed as municipalities look for alternatives for reclaimed water disposal while protecting their potable drinking water sources.

Presenters: **Bob Hansen and Chris Horgan**

Presenter: **Robert "Bob" Hansen**
Title: Board Chair
Organization: Southside Water and Sewer District

Professional Background: Bob Hansen is the owner of Water Systems Management, Inc. (WSM), which provides consulting services and management of compliance activities in Idaho associated with public drinking water systems and wastewater systems. WSM provides services to privately owned systems, cities, districts, associations, the State of Idaho, and Federal agencies. Bob is the back-up responsible charge operator for the SWSD system and is involved with numerous other systems in north Idaho, including Bayview Water and Sewer District, City of Dover, and the Bottle Bay Recreational Water and Sewer District. He has over 15 years of experience in the water and wastewater industry, and holds numerous Idaho operator licenses including, Class II Drinking Water Distribution, Class II Drinking Water Treatment, Class II Wastewater Collections, Class II Wastewater Treatment, Lagoon Wastewater Treatment Operator, and Land Application Wastewater Treatment Operator.

Presenter: **Chris Horgan, M.S., P.E.**
Title: Professional Engineer
Organization: J-U-B Engineers
Email: chorgan@jub.com

Professional Background: Chris earned his B.S. (2007) and M.S. (2009) in Civil Engineering from the University of Idaho. He is a licensed professional engineer in the State of Idaho and has 10 years of consulting experience in the water/wastewater industry, including project funding, planning, design, and construction.

Reuse Land Application Operations – The Art and Science

Abstract

This presentation will review how reuse land application operations involves plant, crop and soil management along with irrigation practices. Case studies and practical operational tips and applications will be presented for the ‘science’ versus the ‘art’ of operating a reuse site versus a traditional farm. Operations involve proactive planning and management to meet permit loading limits and to understand the crop water needs to evenly distribute the applied nutrients.

Presenter: Franklin Gaudi

Presenter: Franklin Gaudi, Ed.D., CID, CCA
Title: Project Manager and Lecturer
Organization: Cal Poly
Email: fgaudi@calpoly.edu

Professional Background: Franklin Gaudi is a California Polytechnic State University (Cal Poly) alumnus and a Project Manager for the Irrigation Training and Research Center (ITRC). He teaches courses in Irrigation Water Management, On-Farm Irrigation Systems, Landscape Irrigation, AutoCAD, and Careers in Agriculture. He also teaches many of the irrigation short courses taught in the summer through the ITRC.

Franklin holds certifications through the Irrigation Association (IA) as a Certified Irrigation Designer (CID) in surface, drip/micro, and sprinkler, as a Certified Irrigation Contractor (CIC), and as a Certified Agricultural Irrigation Specialist (CAIS). He is currently serving as a member of the Irrigation Association Certification Board where he assists with maintaining existing certifications and developing new certifications. Franklin is also recognized through the American Society of Agronomy (ASA) as a Certified Crop Advisor. Franklin’s current areas of interest are utilizing domestic wastewater for agricultural forage crops and landscape irrigation design and auditing. Through research and projects at the ITRC, Franklin is able to bring experience including real-world problems and solutions into the classroom.

Specialization:

- Landscape irrigation education and training
- On-farm irrigation management and scheduling
- Center pivot design for effluent projects
- Improving upstream water level control with ITRC Flap Gates
- Landscape auditing

Additional Activities:

- Quarter Scale co-advisor
- Agricultural Engineering Society club advisor

Education:

- B.S., Agricultural Systems Management with a Minor in Agribusiness, emphasis in Mechanical Systems, Cal Poly State University, San Luis Obispo, CA
- M .S., Industrial and Technical Studies, emphasis in Irrigation, Cal Poly State University, San Luis Obispo, CA
- Ed.D., Educational Leadership/Educational Technology, University of Phoenix

Sewer District Implements Private/Public Reuse System

Abstract

The Payette Lakes Recreational Water and Sewer District (PLRWSD) is implementing a collaborative private/public solution for their effluent disposal via reuse. The system includes 1,140 acres of reuse sites (within 2,000 acres of privately owned ag land) split into 22 hydraulic management units, seven miles of reuse pipe, and turnout structures that allow reuse or irrigation water onto the reuse sites. This presentation will go over the history of how this solution was developed, the key points of a private/public partnership, and the technical details of a large reuse system. The transition out of a long term compliance agreement and into a reuse permit has been a long journey and is a cautionary tale for facilities looking at voluntarily, or involuntarily, giving up waste load allocations. There are important features with a private partnership that are critical for a positive working relationship and overall long term success. Private ranchers and farmers value the water and nutrients but they are not worth too much inconvenience. Overall, this type of solution required substantial effort in technically analyzing alternatives, years of political discussions, public involvement, relationship building, and financial commitment. In the end, this solution will provide the District Patrons with a cost effective long-term solution and improves upon the existing system with regards to compliance, operation, and future expansion.

Presenters: David Watkins, Brett Converse, and Dale Caza

Presenter: Dale Caza
Title: District Manager
Organization: PLRWSD

Professional Background: Dale has been in the wastewater profession for over 33 years, with 23 of those years at the Payette Lakes Recreational Water and Sewer District (PLRWSD), and has served as operations manager of PLRWSD since 2008. Prior to his employment with PLRWSD, he was employed by the City of Nampa and Boise City wastewater divisions. Dale holds State of Idaho wastewater and water licenses in wastewater collections, wastewater treatment, wastewater land application, and drinking water distribution as well as a journeyman's wastewater maintenance mechanic certificate from the United States Department of Labor. Over the course of his career he has operated large tertiary treatment facilities, small aerated treatment lagoons, and a variety of wastewater pumping stations. He is currently a member of the Pacific Northwest Clean Water Association and WateReuse Association.

At PLRWSD, Dale provides municipal sewer collection, treatment, and disposal for the City of McCall and the area surrounding Payette Lake to protect the health and welfare of local citizens.

Presenter: **Brett Converse, Ph.D., P.E.**
Title: Professional Engineer
Organization: J-U-B Engineers
Email: bconverse@jub.com

Professional Background: Brett Converse, P.E., Ph.D., is a professional engineer in the Sandpoint, ID office of J-U-B Engineers, Inc. He has worked closely with the PLRWSD as a technical advisor and compliance expert for the last ten years.

Presenter: **David Watkins, P.E.**
Title: Professional Engineer
Organization: J-U-B Engineers
Email: dwatkins@jub.com

Professional Background: David Watkins, P.E., is a professional engineer in the Moscow, ID office of J-U-B Engineers, Inc. He has worked in the field of water, wastewater, and sewer for over eight years and has been the PLRWSD District Engineer for the last five years.

Water Reuse on Top of The Mountain: Schweitzer's Unique Solution

Abstract

Mountain Utility Company (MUC) operates Schweitzer Mountain Resort's wastewater land application system under an existing Reuse Permit issued in 2015. The first wastewater land application permit at Schweitzer was issued by DEQ in 1994. The current permit allows for treatment of municipal wastewater through a combination of summer drip irrigation and winter sub-snow drip irrigation on up to 140 acres of forestland. Active irrigation area includes 35 acres at Schweitzer's primary wastewater treatment and land application site referred to as the Schweitzer Creek area; 31 acres about a mile away referred to as the Swede Creek area; and 2.4 acres at Schweitzer's Outback Lodge on the backside of Schweitzer Mountain. Treatment prior to land application consists of solids removal through individual septic tanks with effluent filters, followed by secondary facultative lagoon treatment and storage. The system currently serves over 900 ERUs with annual wastewater flows of more than 20 million gallons.

Construction, operation, maintenance and monitoring of the reuse system presents numerous challenges because the remote location, steep terrain, average annual snowfall of more than 220 inches, plus average rainfall of over 38 inches. The only Reuse Permit of its type in Idaho, this system has a vigorous sampling and monitoring network including more than 40 groundwater monitoring piezometers, six (6) surface water sampling locations, snow depth monitoring in the winter, and separate tracking of summer and winter loadings.

Presenters: Tom Trulock and Scott McNee

Presenter: **Tom Trulock**
Title: Utility Company President
Organization: Mountain Utility Company
Email: ttrulock@schweitzer.com

Professional Background: Tom has been in the ski industry for over 46 years, the first 20 at Snowbird, Utah and the balance at Schweitzer Mountain Resort in Sandpoint, ID. The majority of his time has been in operations with a four-year stint in Human Resources roughly in the middle. Tom and his family moved to Sandpoint in 1994 to help with his wife's family's marina and Tom began working at Schweitzer that fall. After a brief stint directing the Human Resources function he took over Mountain Operations in 1997 and in 2005 transitioned to directing the utility side of the company (Mountain Utility Company) where he is today. In addition to providing wastewater services to the entire Schweitzer Community, MUC also operates one of three water systems, a cable TV/internet service and provides snow removal services for the resort. Additionally, Tom contributes to the resort's real estate planning and development function.

Tom holds licenses in Wastewater Collections, Treatment and Land Application as well as Water Treatment and Distribution. He has lived in the Sandpoint area for over 25 years and, along with his wife Marjorie, owns and operates Heitman Docks Marina on Lake Pend Oreille.

Presenter: **Scott McNee, P.E.**
Title: Project Manager
Organization: T-O Engineers, Inc.
Email: smcnee@to-engineers.com

Scott McNee is a Project Manager and partner at T-O Engineers working out of T-O's Coeur d'Alene, Idaho office. He has Bachelor of Science (1992) and Master of Engineering (1994) degrees in Civil Engineering, with an emphasis in sanitary engineering, from the University of Idaho. Scott has over 24 years of project management, engineering and construction management experience, primarily in community water and wastewater systems. He has specialized experience in water reuse systems and has been involved in permitting and design of more than a dozen such systems in Idaho. Scott is a licensed Professional Engineer in Idaho, Washington and Oregon. He has been working with Schweitzer on water and wastewater solutions since 1996.

Recycling Conventional Wastewater from Unconventional Facilities

Abstract

The Idaho Department of Correction uses treated water from their detention facilities for irrigation of crops. Although not used for watering food crops, these recycled water facilities have unique challenges associated with operational requirements and treatment needs. Presentation will cover how to adapt to atypical circumstances all the way from wastewater source through the operations workforce, including crop harvesting.

Presenter: Stuart Hurley

Presenter: **Stuart Hurley, P.E.**
Title: Co-Owner and Principal Engineer
Organization: Mountain Waterworks
Email: shurley@mountainwtr.com

Professional Background: Stuart Hurley, P.E. is a founding partner, co-owner, and Principal Engineer of Mountain Waterworks, with over 18 years of professional water and wastewater consulting experience. Mr. Hurley manages industrial and municipal utility design and construction projects, optimizes operation of water and wastewater facilities, and provides funding support to keep major upgrades affordable. He specializes in biological nutrient removal, advanced tertiary treatment, and zero-liquid discharge.

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Finding the Fun in Funding

Abstract

An overview of funding sources for water reuse projects. Learn about potential sources of state and federal funding to assist you in planning, designing, and building your water reuse project.

Presenters: Cynthia Wall and MaryAnna Peavey

Presenter: **Cynthia Wall**
Title: Municipal Facility Financial Assistance Specialist
Municipal Facility Manager
Regional Cultural Resources Coordinator
Organization: Washington State Department of Ecology
Email: [CYWA461@ECY.WA.GOV](mailto:Cywa461@ecy.wa.gov)

Professional Background: Cynthia Wall works for the Washington State Department of Ecology assisting communities with infrastructure funding needs. She works with municipalities in Eastern Washington to secure low interest loans and grants for planning, design and improvements of wastewater infrastructure and collection systems. Cynthia currently serves as the State Agency Representative on the Infrastructure Assistance Coordinating Council, a nonprofit organization dedicated to helping Washington communities identify and obtain resources to develop, improve and maintain infrastructure.

When she isn't working, Cynthia enjoys hunting and fishing with her husband and building their retirement home.

Presenter: **MaryAnna Peavey, CPM**
Title: Loan Program Coordinator
Organization: Idaho Department of Environmental Quality
Email: MaryAnna.Peavey@deq.idaho.gov

Professional Background: MaryAnna is the grants and loan coordinator for the Idaho Department of Environmental Quality.

Water Reuse from Regulators Points of View

Abstract

From a regulatory standpoint the state of water reuse in Washington, Oregon, and Idaho will be discussed from the regulating agencies. Additionally, other states outside of the northwest may also be participating to discuss their considerations and differences from the northwestern states. The rules for each state and considerations for protection of public health and the environment from each states perspective will be discussed.