2018 Pacific Northwest WateReuse Conference Agenda

Wednesday, May 16, 2018

8:00 am–5:00 pm Regulator Summit

9:00 am–3:30 pm Tale of Two Facilities Technical Tour

Thursday, May 17, 2018

7:30 - 8:30 am Continental Breakfast

8:30 - 9:00 am Welcome: Introduction to Recycled Water: Establishing a Common Understanding
Christopher Stoll, Kennedy/Jenks Consultants

Developing a common understanding and language surrounding recycled water is important with such distinctions as gray water, reclaimed water, rainwater harvesting and recycled water. Each has their set of regulations, especially for recycled water, in the three states of OR, WA and ID. This presentation will give a brief overview of the language, drivers, regulations and technical treatment information surrounding recycled water to help set the stage for the remainder of the conference. This common understanding is important for articulating ideas, concepts and projects with recycled water.

9:00 - 10:00 am Opening Speaker: Crooked River Wetlands Effluent Reuse Project
Betty Roppe, City of Prineville
Eric Klann, City of Prineville

The City of Prineville's successful Crooked River Wetland Complex is now complete and providing remarkable social, economic and environmental benefits to the community. Through this 120-acre, multipurpose project, the City is responsibly expanding its wastewater capacity, lowering residential and business System Development Charges, stabilizing monthly wastewater rates, created a new public hiking trail system with numerous educational opportunities and improving riparian and instream conditions in the Crooked River. Initially tasked with the construction of a $62 million mechanical treatment facility, the City shifted to embrace a 120-acre wetland complex plan. The Crooked River Wetland project provides the following benefits:

Civic Improvements - Future treatment costs were reduced from $62 million to $7.77 million. The City provided $4.75 million of the funding and secured over $3 million in grants to finance the project. Wastewater System Development Charge was reduced from $9,147 per home to $3,875 per home.

Recreational Opportunities - Amenities abound with over 5.4 miles of new loop, and out and back, walking, running and hiking trails, 3.25 miles of which are paved for use year-round.

Educational Values - Thirteen separate colorful kiosks present topics ranging from the Crooked River Watershed to macroinvertebrates. Local schools helped to design these informative kiosks.

Environmental Benefits - Over two miles of riparian improvements to the Crooked River have been implemented, as well as the construction of over 120 acres of wetlands, benefitting many species of fish and wildlife, including lower river temperatures.

10:00 - 10:30 am Break

10:30 - 11:15 am Session 2: The John Day Innovation Gateway Water Reuse System
Nickolas Green, City of John Day

On May 9, 2017, the City of John Day announced its intention to create an 80-acre innovation center in the heart of the city. The former mill property known as Oregon Pine will be reclaimed and revitalized. In the future, it will become the John Day Rural Innovation Gateway, a location that integrates community, technology, education and commerce with a focus on rural innovation and rural value creation.

The complex is bisected by the John Day River, the third longest free-flowing river in the contiguous United States, and is surrounded by over two million acres of national forest and public lands in Grant County, Oregon, ideal for hunting, fishing, outdoor recreation and business retreats.

The Innovation Gateway will house the City's new wastewater treatment plant, a proposed water reclamation facility that will reclaim up to 80 million gallons of nutrient-rich effluent annually. Reclaimed water will be used to create botanical gardens and greenways along the John Day River, and for hydroponic cash crops grown in commercial-scale greenhouses.

The first pilot-scale greenhouse at the Innovation Gateway is slated for construction in July 2018. The 6,000 SF facility will be located on the south side of the John Day River. This multipurpose greenhouse will generate roughly 1,200 pounds of fresh produce per week with multiple crop types (leafy greens, fruits and herbs), resulting in just over 31 tons of produce per year to be purchased by local grocers. The greenhouse will also function as an academic research facility for secondary and post-secondary students and various community supported agriculture initiatives.

The entire venture will be owned and operated by the City of John Day as a division of its Public Works Department. Assets from the Sewer Fund (reclaimed water) will become inputs to the greenhouse, and revenue (sales) from the greenhouse will accrue to the Sewer Fund to offset its operating expenditures and ultimately the cost of wastewater treatment – all while delivering fresh, locally grown produce for our residents and academic research opportunities for our students.

11:15 am – Noon Session 3: Wastewater Discharge to Reclaimed Water: Washington State's New Reclaimed Water Rule
Jocelyn Jones, Washington State Department of Ecology
Kerri Cope, Oregon State Water Resources Board

Even in rainy Washington, water is a precious commodity. Agriculture, industry, and our local communities all depend on sufficient, stable supplies of water. Although there are many existing permitted reclaimed water facilities across Washington State, for more than a decade, the Department of Ecology (Ecology) has been working to adopt a reclaimed water rule. Through several fits and starts that span more than a decade and four rule writers, Ecology coordinated with the Department of Health and worked with a stakeholder advisory committee, and this past January the state adopted its first ever Reclaimed Water rule. Gain insight and perspectives from Washington State's decade-long reclaimed water rulemaking, including information about the challenges they faced, their stakeholder process, and an overview of the main components of the new rule.

Just 30 years ago, effluents from municipal wastewater treatment plants in Oregon represented a disposal problem. As effluent flows increased with rising populations in Oregon, the levels of treatment requirements became more stringent to avoid overly polluting the receiving water bodies which created a higher quality, valuable source of water which meant less wastewater being dispensed instream and less water for downstream water users. Oregon Revised Statute (ORS) 537.132 was finalized in 1991 to address the needs of downstream water users; included in the statute was the requirement that a rule be adopted to implement the requirements of ORS 537.132. Draft Oregon Administrative Rule (OAR) 690-087 will address those needs with a tentative approval date of September, 2018.

Noon – 1:00 pm Lunch

1:00 – 1:30 pm Session 4: Behind the Trailer Doors: the Arizona Pure Water Brew Challenge
Channah Rock, University of Arizona

The Arizona Pure Water Brew Challenge (AZ PWBC) was a public outreach campaign to better inform Arizonans about water reuse and technologies available to purify reclaimed water to meet or exceed drinking water standards. To do this, the Pure Brew Team recruited crafter brewers in communities throughout the State to participate in a beer making competition using advanced purified reclaimed water as the primary ingredient. The greatest obstacle to the success of the project wasn't the technology or science behind water purification, but instead public perceptions and overcoming the "ick factor." To tackle this challenge the team developed a comprehensive and focused outreach and communications strategy to convey a single, clear message: reclaimed water really can be made safe for human consumption. The comprehensive outreach program focused on the use of mainstream and social media as platforms for communication success. Additionally, the team partnered with the Decision Center for A Desert City at Arizona State University to conduct a longitudinal media survey (LMS) and sentiment analysis to better understand the impact of messaging to consumers across the country in near-real time. This proved as a valuable resource for future potable reuse messaging strategies.

1:30 – 2:00 pm Session 5: The City of Boise's Recycled Water Project
Permit Compliance and Long-term Sustainability
Haley Falconer, PE, City of Boise

NPDES permits issued to the City of Boise in 2012 contained phosphorus and temperature limits for the first time. The City has been evaluating options for temperature and phosphorus compliance for years.. A thorough analyses of temperature compliance alternatives determined that the only strategy to ensure year-round compliance was the installation of wastewater evaporative cooling towers and chillers. In addition to the high capital cost, evaporative cooling towers and chillers consume large amounts of energy and negatively impact the environment through emissions of air pollutants and greenhouse gases. Technological chilling would create artificially cool plumes that would quickly warm to thermal equilibrium in the river downstream of the water renewal facilities and provide very little aquatic environmental benefit. One possible solution for both phosphorus and temperature includes delivering recycled water to a local irrigation canal for use as irrigation supply. In 2014, the City of Boise signed an agreement with the Farmer's Union Ditch Company to receive discharge from one of its facilities. Since then, the city has been working through strategic planning and facilities upgrades to produce recycled water. This presentation will focus on the overall process, including the challenges to discharging into an irrigation canal. We will touch on recycled water rules, receiving water standards, regulatory agencies and primacy, as well as facility planning and municipal constraints. Overall, this is a win-win regulatory and water planning solution that we look forward to continuing.

2:00 – 2:30 pm Session 6: Federal Funding for Recycled Water: The Latest form Washington DC
Pat Sinicropi, WateReuse Association

This session will provide an update on water infrastructure legislation related to water recycling moving through the US Congress, as well as a discussion and update on the federal funding programs available for investment in water reuse.

2:30 – 3:00 pm Break

3:00 – 3:30 pm Session 7: Making it Their Choice – When a Community Loves Water Recycling
Mark Millan, City of Windsor

Water scarcity is a growing problem around the world and even in our nation. Water Recycling from purple pipe to potable reuse is a potential solution that can provide water customers with a reliable, locally controlled source of water. In some communities the greatest obstacle toward implementing a recycled water initiative is public perception and acceptance. But what if it wasn't. What if a community embraced the concept and use as positive from the very beginning? That is the story of the Town of Windsor. In 2015 Windsor reused 90% of their recycled water. How did they do it that? How did they start? And how did their community come to take pride in their robust and award winning recycled water program? Mark Millan, a recycled water outreach expert and former Mayor of the Town of Windsor tells the story. He stills serves as a councilmember and is active regionally in water issues throughout the greater San Francisco Bay Area. He will share Windsor's success as well as other cities and districts who managed to garner support and acceptance for their recycled water efforts.

3:30 – 4:00 pm Session 8: Leveraging a One Water Approach for Reclaimed Water Planning in PNW
Lynn Stephens, Brown and Caldwell

Water is an essential ingredient of our survival as well as the vitality of our communities, economies, and environment. Several drivers, including climate change, drought, catastrophic events, degradation of water quality, population shifts, and new views on human water use patterns, are causing utilities to manage water in new ways. A significant body of research and utility experience indicates that an integrated "One Water" management approach helps to address increasing uncertainties and enhances overall efficiency, reliability, and resilience of water supplies while seeking to improve the sustainability of our communities and the environment. Many utilities have identified the need for tactical steps or guidance for integrated water resources planning. For Water Research Foundation project #4660, we developed a user-friendly blueprint for the practical application of One Water planning. The blueprint includes critical steps in developing a One Water framework, case study examples of how utilities have taken innovative approaches to incorporating an integrated planning approach, methods for overcoming potential barriers and obstacles, and key outcomes and milestones for each critical step. This presentation will provide an overview of the blueprint and focus on a local example of One Water where we are supporting Kitsap County in the development of a Reclaimed Water Plan and evaluating options for reclaimed water discharge.

4:00 – 5:00 pm Panel Discussion: Emerging Technologies Panel Discussion
CJ Strain, Nexom
Dennis Livingston, Ovivo
Patrick Bollman, Evoqua
Chris Allen, Suez
Salvador Dominguez, Xylem

Technologies for wastewater treatment and recycled water production are constantly evolving to meet more stringent regulations, decrease energy usage and footprint and become more reliable. This panel discussion will involve some of the leaders in the wastewater treatment industry where they will discuss current trends in the market from both a research perspective and a production perspective. The panel will take preformulated questions from the host and take questions from the audience.

5:30 – 6:30 pm WateReuse Exchange

The WateReuse Exchange is a unique opportunity that allows attendees to engage in knowledge sharing, peer-to-peer interaction and one-on-one discussions with experts in a fun and collaborative environment. A reuse demonstration will allow attendees to witness first-hand the benefits and safety of recycled water.

Friday, May 18, 2018

7:30 – 8:30 am Breakfast/PNW Section Board Meeting

8:30 – 9:30 am Opening Speaker: Climate Change and Recycled Water
Phil Mote, Oregon Climate Change Research Institute

A warming climate affects the water cycle in several ways. Warmer winters raise the snow line, increasing the risk of winter flooding and decreasing snow accumulation in basins with areas around or below freezing. The reduced accumulation increases solar absorption in the spring and accentuates local warming then, as well as reducing summer runoff in snowy basins. Finally, warmer and drier summers increase evaporation, increasing demand for water just as supply is diminishing. Averaged across the western US, the decline in total April 1 snow water equivalent since mid-century is roughly 15-30% or 25-50 km3, comparable in volume to the West's largest man-made reservoir, Lake Mead. In the absence of rapid reductions in emissions of greenhouse gases, these losses will accelerate; snow losses on this scale demonstrate the necessity of rethinking water storage, policy, and usage.

9:30 – 10:00 am Session 9: Hermiston Upgrades to Recycled Water
Byron Smith, City of Hermiston

City Manager Byron Smith from the City of Hermiston talks about the process of upgrading their wastewater treatment plant to meet their reuse permit requirements as one of the first facilities to complete this process in the State of Oregon. There will be a discussion of options considered and then of the option chosen which was a first in the state of Oregon. There will be discussion of the lessons learned in the process.

10:00 – 10:30 am Break

10:30 – 11:30 am Session 10: Oregon Gardens Wetlands and Wastewater Reuse
Kyle Palmer, City of Silverton Mayor
Steve Starner, City of Silverton Water Quality Supervisor

On October 28, 1995, the Oregon Garden Foundation signed a 100-year lease agreement with the City of Silverton, incorporating 16.4 acres of wetlands as part of the arboretum of landscape features highlighting nursery plants grown in Oregon, and accepting reclaimed water from the City's wastewater treatment facility for the purpose of irrigation and reuse. The goals of this project included providing aquatic features for educational demonstration; providing a diverse wildlife habitat; and demonstrating the variety, value, and beauty of Oregon native wetland nursery plants. The highlight of the project would be to provide an example of water stewardship in the use of recycled, treated wastewater.

11:30 am - Noon Session 11: Funding Should Not Be Your Barrier
David Dunn, Washington State Department of Ecology

Reclaimed Water projects face many barriers to implementation; regulation, technical viability, public acceptance, financing. This presentation is intended to remove project financing from your list of barriers. If your project is technically feasible, acceptable to your local regulatory body, and your utility has the political will and public support, consider using the State Revolving Fund as your source for project financing."

Noon – 1:00 pm Lunch & Kids Art and Poetry Winners
Sharonne Park, Brown and Caldwell

1:00 – 1:45 p.m. Session 12: Compounds of Emerging Concern – A Technical Solution to a Political Problem
Brad Hill, City of Flagstaff

The City of Flagstaff, Arizona is a community of 68,000 population located 75 miles south of Grand Canyon National Park. Flagstaff started the direct delivery of reclaimed water in the mid-1960s for golf course irrigation which now makes up 20% of the total water delivered to customers. The community now uses reclaimed water for dual plumbing in hotels and dorms at Northern Arizona University, manufacturing, irrigation of parks and schools and most recently for artificial snowmaking. In August 2012, Virginia Tech released an independent study of Flagstaff's reclaimed water from various sprinkler heads at selected parks. The report described detecting markers of antibiotic resistance genes. The presence of genetic markers indicates the presence of DNA, but such a finding does not indicate if the DNA was from live or dead bacteria. This report had a significant impact on the Flagstaff community and once again put into question the safety and use of reclaimed water back into the public arena. The City Manager sought scientific advice to help address the increasing political problem of the continued use of

reclaimed water within the community and recognizing the importance of water to the future of Flagstaff. In 2013, he created an Advisory Panel comprised of 12 local, state and nationally recognized researchers, scientists and industry professionals to help understand what Compounds of Emerging Concern mean locally. The last meeting of this Panel occurred in November 2017 and made several recommendations during the past four years.

1:45 – 2:30 pm Session 13: Neighborhood Scale Water Reuse Case Study – Hassalo on Eighth
Thomas Putman

Hassalo on Eighth is one of the largest district scale wastewater treatment and reuse projects in North American. Planned to serve over 12 blocks of development in downtown Portland, the water reuse facility at Hassalo on Eighth is a true innovation and testament to the public private partnership between the City of Portland and American Assets Trust (the project owner). This session will provide a detailed overview of Hassalo of Eighth, the onsite water recycled system, regulatory requirements, financial value proposition and customer education.

2:30 – 3:00 pm Break

3:00 – 3:30 pm Session 14: Solving Winery Wastewater Challenges in Small/Meduim Sized Wineries
Ben Sinner, Northwest Wine Industry and Ag Properties

Working closely with Washington DOE, a wastewater treatment process using immobilized bacteria was developed to treat wastewater discharged from small to medium sized wineries. The test site treatment process was sized for 15,000 cases per year, utilizing the bacteria inoculated into porous media as the main component for biological BOD removal. The system can treat high strength waste during the crush, as well as intermittent periods during barreling and bottling. Membrane filtration was utilized to remove suspended solids, bacteria and viruses. UV disinfection was used to ensure coliform removal. The treatment system was able to meet all Washington DOE requirements for Class A reuse water

3:30 – 4:30 pm Panel Discussion: Regulatory Panel Discussion

Jocelyn Jones, Washington State Department of Ecology
Kerri Cope, Oregon State Water Resources Board
Tom Rackow, Idaho Department of Environmental Quality
Pat Heins, Oregon Department of Environmental Quality

Regulations for recycled water have historically been driven from a state level which leaves a regulatory framework that is unique for each state. This has been true for OR, WA and ID. This regulatory panel discussion will focus on the regulatory drivers, framework and stakeholders for each state. The panel will be comprised of regulators from all three states. They will take preformulated questions from the host and take audience questions.

4:30 – 4:45 pm Conference Conclusion