

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016	8:30:00 AM	9:30:00 AM	Location	CEUs
			H	ID/OR/WA 0.6/0.6/0.6 Pending

Track

CWSS Precon

Author

Kenny Janssen

Presentation Title

Aquifer Storage and Recovery (ASR) Technology Overview, Applications and Benefits, and Project Development Needs

Description

Development of water storage has become increasingly costly and complex during the last several decades. The use of groundwater aquifers for temporary storage of water supply has emerged as a cost-effective water management tool for storage volumes ranging from a few millions of gallons up to a billion gallons or more. Aquifer storage and recovery (ASR) well systems have been installed and are in operation in many places around the United States and the world where seasonal water availability is a challenge for water users. This presentation provides an overview of ASR and describes elements of ASR project development. ASR is a water supply management tool used by many municipal drinking water providers throughout the Pacific Northwest. This presentation provides information on the development of ASR projects and operational characteristics that is educational to municipal water supply personnel currently operating or potentially developing an ASR project.

CEU Comment

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May 3, 2016 9:45:00 AM 10:15:00 AM **Location** **CEUs**
H ID/OR/WA 0.6/0.6/0.6 Pending

Track

CWSS Precon

Author

Dave Nazy

Presentation Title

Pacific Northwest Aquifer Storage and Recovery (ASR) Regulatory Summary and Permitting

Description

Aquifer storage and recovery (ASR) projects are being implemented in Idaho, Oregon, and Washington under each state's individual laws and regulations. An overview of ASR activities in each state will be presented as well as the regulatory framework used for such projects. This talk will provide an overview of the ASR regulatory framework within Idaho, Oregon, and Washington. This information could be used as a general guide for planning and permitting ASR projects.

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May 3, 2016 10:15:00 AM 10:45:00 AM **Location** **CEUs**
H ID/OR/WA 0.6/0.6/0.6 Pending

Track **Author**
CWSS Precon David Kuhns

Presentation Title

Aquifer Storage and Recovery (ASR) Engineering and Design Considerations

Description

As water use allocation and protection of our water resources becomes more important throughout the Pacific Northwest, we will see a rise in the importance of aquifer storage and recovery (ASR) facilities and knowledge of their design. This presentation provides a general overview of the engineering considerations that are made when designing an ASR facility for use with a drinking water system. Topics discussed will include: pump and ASR valve choices and design, ASR flow to waste considerations, water quality monitoring, treatment methods, and operating procedures and scenarios. The presentation will provide an overview of the design considerations that need to be made for an ASR well in a drinking water system. This will allow operators to understand how an ASR well could be integrated into an existing system. The information provided in the presentation also will provide operators with background information that can be used to determine the level of effort required to operate and maintain an ASR facility.

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2017 PNWS-AWWA Conference - Session Summaries

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Track			Author	
CWSS Precon			Joel Cary	

Presentation Title

Aquifer Storage and Recovery (ASR) Operations and Maintenance

Description

In 2008, the Tualatin Valley Water District (TVWD) implemented its first aquifer storage and recovery (ASR) program. Since that time, TVWD has successfully managed the program through several cycles of recharge and recovery. This presentation will focus on specific operational and water quality management aspects of the program and explain how these components are important to the long-term success of ASR for water utilities. This presentation is focused on the basic operation of an ASR program, both in terms of water quality and day-to-day water system operations. The content is specifically relevant to water system operators who currently oversee an ASR facility or are considering this type of resource to meet their community's water needs. Details will include water quality sampling aspects of the program along with the various maintenance requirements and basic performance evaluation criteria that can be performed by operators.

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May 3, 2016 11:30:00 AM 12:00:00 PM **Location** **CEUs**
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Track **Author**
CWSS Precon Jason Melady

Presentation Title

Aquifer Storage and Recovery (ASR) Alternative Applications and New Frontiers

Description

Use of aquifer storage and recovery (ASR) as a municipal drinking water supply management tool has grown rapidly during the last 20 years throughout the western United States. Successful implementation of ASR as a water storage tool for drinking water has increased interest in evaluating ASR to address other water supply and water quality issues. ASR is being assessed to store excess wintertime streamflow to provide summertime temperature and streamflow benefits in streams with threatened or endangered fish species where traditional habitat restoration efforts have been difficult. Offseason streamflow for ASR in the summer is used to mitigate effluent temperature loading from wastewater treatment facilities and other temperature-limited discharges. Agricultural communities use ASR to restore and maintain depleted aquifers for irrigation. This presentation explores a number of alternative applications of ASR and new frontiers in groundwater recharge and storage. ASR well systems are used as a water management tool in municipal water supply systems to offset peak water demands. This presentation describes existing and potential alternative uses of this water storage technology.

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Track **Author**
CWSS Precon Lizzi Haas

Presentation Title

Kennewick ASR Feasibility Assessment

Description

The City of Kennewick collaborated with the Washington Department of Ecology to develop an aquifer storage and recovery (ASR) system in the City's rapidly expanding Southridge area. The City is storing treated drinking water from its Columbia River supply source in a basalt aquifer system beneath the City and recovering that water to benefit the supply system operations and summer supply availability. The deeper portions of the Wanapum Formation basalts are relatively undeveloped and the aquifer hydraulics were not well-defined in the area selected for development. An exploratory drilling and testing program identified highly productive interflows that would support ASR storage zone development at economic rates at approximately 1,200 feet below ground surface. This presentation will outline the feasibility assessment stages of the City's ASR project, including well drilling, well construction and development, pump testing, groundwater and source water quality characterization, an engineering and economic AKART analysis (all known, available, and reasonable methods of prevention, control and treatment), a geochemical compatibility assessment, and an environmental assessment. Operators will learn about well performance, water quality, and environmental aspects and considerations that contribute to assessing the feasibility of using an ASR system for municipal purposes.

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Track

CWSS Precon

Author

David Kuhns

Presentation Title

Kennewick ASR Facility Design and Construction

Description

As water use allocation and protection of our water resources becomes more important throughout the Pacific Northwest, we will see a rise in the importance of aquifer storage and recovery (ASR) facilities and knowledge of their design. This presentation provides an overview of the design and construction of the City of Kennewick's ASR well designed for a recharge rate of 1,600 gpm and recovery rate of 2,080 gpm. The presentation will discuss the design of the well's pump, flow control, treatment, and modes of operation. A discussion also will be provided about the facility's construction and lessons learned. The presentation provides a specific example of the design of an ASR well in a drinking water system. This will allow operators to understand how an ASR well could be integrated into an existing system. The information provided in the presentation also will provide operators with background information that can be used to determine the level of effort required to operate and maintain an ASR facility.

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Track **Author**
CWSS Precon Phil Brown

Presentation Title

Kennewick ASR Pilot Testing Design

Description

ASR testing programs have both regulatory compliance and operational objectives. Where aquifer conditions require test results to confirm project feasibility, test approach can be designed to reflect both hydrogeologic conditions and project schedule needs. This presentation will give an overview of two common test program approaches. ASR testing is used to confirm recovered water quality and demonstrate that the water can be put to beneficial use. Understanding the data outputs and operational approach to storage zone development will help operators manage the supply portfolio as ASR wells are integrated into their systems.

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May 3, 2016 2:45:00 PM 3:15:00 PM **Location** **CEUs**
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Track **Author**
CWSS Precon Kenny Jansen

Presentation Title

Kennewick ASR Pilot Testing, Operations and Maintenance

Description

The City has been conducting pilot testing of its ASR-1 facility since 2014, to assess the potential for thermal storage zone development (i.e., native groundwater temperature is approximately 81°F) and to evaluate the feasibility of long-term ASR recharge operations. Results thus far have not identified any hydraulic or thermal limitations to ASR operations, there has been no evidence of aquifer clogging or well performance concerns, and both source and recovered water quality has met all established drinking water criteria levels. The ASR program has been a valuable benefit to both in-stream and out-of-stream water uses, allowing the City to use the stored water to meet increases in summer demand rather than increasing summer withdrawals from the river. This presentation will describe operations and monitoring requirements of the City's ASR program, from pilot testing implementation to full-scale operations and maintenance. Operations consist of injecting and storing surplus treated drinking water into the deep basalt aquifer beneath the City during the winter and spring months, and recovering the stored water during the higher-demand summer months. Operation and maintenance and overall management of the ASR system require periodic changes in operating mode (i.e., injection, storage, and recovery); distribution system purging and well backflushing; disinfectant residual monitoring; and routine water level, flow rate, well performance, water quality, and system demand monitoring. Routine monitoring is used to maintain optimal well performance and confirm that recovered water quality meets state and federal drinking water standards.

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Track

CWSS Precon

Author

David Kuhns

Presentation Title

Kennewick ASR Facility Tour

Description

As water use allocation and protection of our water resources become more important throughout the Pacific Northwest, we will see a rise in the importance of aquifer storage and recovery (ASR) facilities and knowledge of their design. The facility tour will provide an onsite overview of the City of Kennewick's ASR well designed for a recharge rate of 1,600 gpm and recovery rate of 2,080 gpm. The tour will include a look at the facility's layout, pump, downhole flow control valve, sodium hypochlorite feed system, waste pond, and modes of operation. The tour will provide a demonstration of the facility's operation and allow a discussion of the technical aspects of the facility with engineers, designers, hydrogeologists, and operators involved with the project's design, construction, and operation. The presentation provides a specific example of the design of an ASR well in a drinking water system and provides a walkthrough of an ASR facility. The facility tour will allow operators a first-hand look at how a constructed ASR well operates. The information provided in the presentation also will provide operators with background information that can be used to determine the level of effort required to operate and maintain an ASR facility.

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Track **Author**
Distribution Derek Holom

Presentation Title

Meeting the Challenges of Water Supply Resiliency in the Pacific Northwest: Consolidating and Transferring Water Rights to More Efficient Production Wells

Description

Municipalities in the Pacific Northwest have primarily been increasing their water supply resiliency by either expanding their existing water supply infrastructure or through aquifer storage and recovery programs. This presentation focuses on an alternative approach, where municipalities have instead consolidated and transferred their water rights from aging, less productive wells to newer, more efficient production wells. By consolidating their water rights, municipalities are expecting to decrease overall operation and maintenance costs while still meeting their water demands. My presentation will cover a case study of consolidating and transferring water rights to a more efficient well as part of a City's water supply management strategy. The new well is capable of producing more than the capacity of two existing wells with less water level drawdown, which will result in less overall operation and maintenance costs. Certified operators may use this information to consider evaluating individual well performances of their water supply system to assess the potential for improvements in their management strategy.

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Track	Author
Distribution	Molly Reid

Presentation Title

The Quad Cities Water Right - A Collaboration of the Cities of Richland, Pasco, Kennewick and West Richland

Description

In 2011 the cities of Richland, Pasco, Kennewick, and West Richland in a collaboration to work together on water resource management, signed a Memorandum of Agreement with the Department of Ecology to secure new water supplies from the Columbia River. The “quad” cities committed to coordinating on water supply development projects to assist all four cities in meeting the mitigation requirements outlined in their permitted water right, and provide alternative and sustainable means of serving the projected growth for these cities. This related to the operation of water systems as for surface and groundwater, water rights are required.

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Track **Author**
Distribution Brandon Barkey

Presentation Title

Estimating Groundwater Resources Of The Republic Of Marshall Islands

Description

Groundwater resources for small coral islands are vital for sustainability of the location population. Rainwater catchments are often used as a principal means of storing drinking water, but become depleted during extended periods of drought; groundwater then becomes the only source to fulfill domestic water needs for the community. Many studies have focused on estimating groundwater resources of coral islands under a variety of climate scenarios, however, none focus on the Republic of Marshall Islands (RMI), a nation acutely affected by drought periods and rising sea level. This study quantifies fresh groundwater resources for inhabited and uninhabited islands of the RMI for both average seasonal rainfall and drought conditions, in order to provide an alternate source of fresh drinking water for survival of a local populace. Upon depletion of a dependable fresh water source, additional drinking water must be found within days if the local people want to survive. This life-sustaining source floats above the salt water just below the surface of the island, providing a plentiful source that is indeed safe to drink. Calculating this accessible water source allows other studies and local people know just how large and dependable the water source is beneath their very own feet. It is important for the results of this study to be taken into consideration giving the local people the water they need during times of drought through methods developed by water system management specialists to acquire the water and purify it, for storage or immediate consumption.

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Track **Author**
Distribution Todd Reynolds

Presentation Title

Groundwater Replenishment With Purified Water Injection Provides Drought Storage and Environmental Benefits

Description

The Santa Maragrita Groundwater Basin Replenishment Project would implement injection of advanced purified water into the Lompico aquifer, in Scotts Valley, CA. Based on detailed groundwater modeling, the Project could store up to 8,000 acre-feet (AF) of replenished water and provide up to 2,000 AF per year or more of supplemental potable water supply during droughts. Benefits also include increased groundwater levels to reduce groundwater pumping costs and to improve stream flows and riparian habitat. The presentation will discuss the approach, treatment technology and benefits of the project.

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Track **Author**
Distribution Michael Kenrick

Presentation Title

Well Design for Optimal Efficiency By Understanding And Minimizing Well Losses At Source

Description

Well design and hydraulic performance in the water supply industry is based more on empirical rules and hard won experience than a robust scientific understanding of the inflow mechanisms that are the principal source of well losses. Some key well design decisions have a crucial bearing on the magnitude of well losses, which control the operating drawdown, and have the potential to vastly increase wellfield operating costs over the long term. We show that higher efficiency wells are inevitably more expensive to install, with the use of longer, larger-diameter screens. But the long-term benefit in terms of lower well losses and higher specific capacity can more than pay off through improved performance and lower pumping costs over the full life of the well — including allowances for well deterioration over time, and reducing the need for well rehabilitation. Taking a different approach to well design in the water industry can result in more efficient wells that produce the same or greater flows with significantly less drawdown. This improvement in specific capacity can significantly reduce well losses for new or replacement wells, and show long-term savings in pumping and well rehabilitation costs that exceed the increased costs of well installation.

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Track **Author**
Distribution Joseph Foote

Presentation Title

A Tail of Two Wells: Reconstruction of Two Hand Dug Caisson Well Stations

Description

Many of the older wells in the Spokane are hand dug caisson wells dating back to the turn of the twentieth century. With many of these wells still in service, the pumping facilities require continued upgrades, which pose unique design challenges. This presentation provides a summary of the reconstruction of two hand dug caisson wells in the Spokane area, and the challenges that were addressed to provide the water utilities with a new state of the art pumping facility for continued supply. This presentation will provide managers and operations staff an overview of what should be considered when assessing the reconstruction of an existing well station facility. Unique considerations associated with the protection of the well, especially hand dug type caisson wells, will also be addressed.

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Track **Author**
Distribution Ronan Igloria

Presentation Title

Have Your Cake: Operator's Guide to Sustainable Asset Management

Description

Sustainability and asset management (AM) are both wide-ranging in definition and scope, and the two practices have developed largely independently in the water industry. However, the two disciplines have many common goals in the water industry. This presentation uses a “maturity model” approach to discuss how water utilities can better implement their respective sustainability and AM programs and communicate the benefits to boards/councils, general managers, operators, and rate payers by understanding their common objectives and practices. The maturity model leverages industry standard guidance including ISI Envision®, Effective Utility Management (EUM), and Institute of Asset Management (IAM). The presentation will identify the shared goals and practices of in the water industry. The “maturity model” approach will help utility engineers and operators understand how sustainability and AM goal overlap to evaluate the state of their program and more efficiently implement sustainability/AM policies and strategies in a practical way. Engineers and operators can incorporate sustainability criteria to better prioritize capital projects and extend the life of assets. Criteria and attributes in the maturity model will cover key asset management and sustainability factors including operations, administration, operations, capital improvements, and resource tracking (energy, water, carbon).

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Track **Author**
Distribution Chris Irvin

Presentation Title

Implementing a Risk-Based Main Replacement Strategy at EWEB

Description

In 2016, the Eugene Water & Electric Board (EWEB) implemented a new risk based main replacement program. Previously, main replacement work was reactively prioritized based on street projects planned by the City of Eugene or based on pipe material types such as steel and asbestos cement. In 2015, a proactive project was initiated to develop a program to help prioritize main replacements based on each pipeline's overall risk to the utility. The project was a collaborative effort by a group of stakeholders from across the utility. The result of the project was the development of a GIS application, accessible to all utility employees, that clearly shows the relative risk of any pipe in the system. The program allows for a more informed and transparent process of prioritizing pipeline replacements. The presentation will discuss the project background, development of the risk based model that was developed and lessons learned after 1 year of implementation. A critical decision for the operation and management of any water system is how to address aging infrastructure in an intelligent and cost effective manner. Water main breaks can be a risk to water quality, water supply, and public health. Risk based prioritization not only considers not just if a main will break but the impacts to the community and the utility if a break happens.

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Track **Author**
Distribution Michelle Kerr

Presentation Title

Northshore Utility District's Approach to the Condition Assessment of Bar Wrapped Pipe

Description

Northshore Utility District is a special purpose water and sewer utility serving over 21,580 water customers and over 21,050 sewer customers. As part of an overall system prioritization project of over 280 miles of various pipe types and diameter, Northshore conducted a comprehensive inspection and condition assessment of approximately 8,765 feet of 24-inch bar wrapped pipe, and 611 feet of 24-inch ductile iron pipe, that comprise the Inglemoor Transmission Main. The assessment included enhanced electromagnetic inspection with visual survey, transient pressure analysis, structural analysis, remaining useful life analysis, and engineering assessment. The results of the condition assessment provided Northshore with a baseline condition of the bars and steel cylinder of the BWP and a baseline condition of the DIP at the time of inspection. Additionally, the results provided Northshore with re-inspection recommendations and remaining service life of the Inglemoor Transmission Main. This presentation is relevant to the operation, maintenance and management of a water system by illustrating the use of enhanced electromagnetic technology to identify the current condition of a pipeline at the time of inspection. The enhanced electromagnetic technology utilized in the condition assessment of the Inglemoor Transmission Main, owned and operated by Northshore Utility District, identifies broken bars in the bar wrapped pipe and cylinder anomalies indicative of corrosion in the steel cylinder of the bar wrapped pipe and anomalies indicative of corrosion in ductile iron pipe. Understanding the current condition of a pipeline is imperative for the operation, maintenance, and management of a water system as it can identify distressed pipes and aide in repair or replacement recommendations of pipe sections rather than the entire alignment.

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Track **Author**
Distribution Jennifer Garbely

Presentation Title

Squeezing Additional Life Out of a 100-Year-Old Reservoir

Description

The City of St. Helens' Two Million Gallon (2 MG) Reservoir, which is about 100 years old, leaks and is in need of rehabilitation. Visible evidence of leakage can be found in two areas consisting of standing water at the French drains and in the pipe vaults. To permanently repair leaks, lining has been identified as the best alternative to rehabilitate the reservoir. The City would like 15 to 20 years of life out of the reservoir before building a new 4 MG reservoir at an alternate site. Many cities and water utilities have aging infrastructure that need to be replaced. However, the cost to replace is high. The ability for operators, engineers, and managers to stretch the life of their infrastructure at a minimal cost with rehabilitation is a value to the community. This allows for proper planning for funding, planning, design, and construction.

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Track **Author**
Distribution Joseph Foote

Presentation Title

Criticality Analysis: The Important Pipes Below

Description

Prioritization of capital improvements can be aided by consequence of failure analysis for water system piping, valves, and supply facilities. This presentation provides a summary of the City of Spokane's use of modeling tools to assist in identifying infrastructure that will have the greatest impact on the system. A ranking of this critical infrastructure was then developed to determine priority for the City's capital improvement program. This presentation will provide managers and operations staff the ability to understand the usefulness of the modeling tools to aid in the identification of critical water system infrastructure. A summary will be provided on the evaluation and ranking of infrastructure improvement for prioritization with the capital improvements program.

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Track **Author**
Distribution Douglas Schlepp

Presentation Title

Asbestos-Cement Pipe: Asset or Liability

Description

Asbestos-cement (AC) pipe was once one of the more commonly used water main materials, but due to health concerns, manufacturing and installation ceased nearly fifty years ago; many systems now are approaching the end of their design lives. Many engineers and or operators have little knowledge regarding the strengths or vulnerabilities associated with this pipe. Methods to analyze the pipe and estimate the remaining life of the AC will be addressed to determine if the pipe in question is an asset or liability. Factors such as pipe class, bedding, soil, ground water and operating pressure which impact the useful life will be reviewed. Techniques to improve the useful life will be addressed. For AC systems in operation, the concerns that arise from impact loads or when handling, removing or working around AC pipe will be addressed. Focus will include the techniques crews can use when working with or around AC pipe when trenching under which can lead to future catastrophic failure. Awareness of how to assess the integrity and remaining useful life of asbestos pipe is a critical part of any asset management program. This presentation will provide the operator or engineer with the tools to better assess the value of the AC pipe within their water system and how to protect the integrity of it while it remains in service. Methods concerning working with and around AC pipe is pertinent to the safety and welfare of the water system operators, contractors and general public.

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Track **Author**
Engineering Sarah Alton

Presentation Title

Main Replacement Selection Methodolgy

Description

Maintaining aging infrastructure is essential for a functioning utility. A challenge to replacing aging infrastructure is determining the appropriate scale of replacement programs. With an inventory of 778 miles of pipe within 45 square miles, Tualatin Valley Water District staff needed a systematic and manageable program to prioritize replacement projects. TVWD initiated a mains replacement program, which identified 25 miles of mains as corroded and leaking. In response to this challenge, TVWD compiled a list of known pipe replacement projects and determined a ranking procedure to prioritize the work. The ranking procedure accounts for criteria such as: pipe condition, critical infrastructure, key customers, and project coordination. Each criterion is weighted on a scale and points are assigned to replacement projects. This ranking allows TVWD to make informed decisions on where to spend limited resources in order to gain the greatest efficiency in replacing aging infrastructure. Engineers and managers will be able to apply the presented information to their own systems and create customized prioritization tools. By knowing how much the utility values each criterion, they can establish which projects should have the highest priority. This will help them make informed decisions and spend rate payer money more effectively and efficiently.

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Track	Author
Engineering	Nathan Endicott

Presentation Title

Transmission Condition Assessment

Description

In the fall 2016, the Eugene Water and Electric Board (EWEB) intends to contract with Leak Detection vendors to inspect approximately 6 miles of 45-inch steel transmission main. This section of transmission main is one of two primary feeds into the water system and has experienced multiple leaks this year. The project will include preparing a RFQ document, soliciting leak detection vendors, completing a pipeline leak detection implementation plan. In addition, workshops will be conducted with the consultant, vendor, and EWEB to identify risks prior to any tool entering a pipe. EWEB engineering and operations staff will work together, with the consultant and leak detection vendor, to identify risks prior to inserting condition assessment tools into a critical transmission main. Review of pipe as-builts, water system GIS maps, and leak detection requirements will be required in order to maintain system operation without removing the transmission main from service.

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Track **Author**
Engineering Marshall Meyer

Presentation Title

Making The Most of Your CIP Budget: Lakewood Water District's Approach To Annual Water Main Replacements & Rehabilitations

Description

Lakewood Water District has adopted a 50-year Replacement and Rehabilitation program to replace 180 miles of aging water system piping and the added impacts of the results of one of the largest ULID sewer projects that devastated the water system in the late 70's to the early 80's. The program need was identified through a review of the District's facilities, leakage levels, pipe ages and types, and the need to safely, reliably and cost effectively provide water. To effectively implement the program, the identification, grouping, prioritization and timing of projects was required. A detailed GIS was developed and used in conjunction with hydraulic modeling performed as part of the District's latest Water System Plan update to identify and prioritize the water main replacements. This presentation illustrates how a system-wide scoring method was developed and employed as an effective/integral tool to prioritize the District's water main replacement and rehabilitation projects. The management of financial resources to replace aging infrastructure is a major challenge for many water system managers. The approach and considerations in this presentation can be applied as other systems seek to prioritize improvements and help ensure their capital funds are spent on projects that make the biggest impact.

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Track **Author**
Engineering Corianne Hart

Presentation Title

Adding More Voices to Decisions: How to Successfully Turn a Triple Bottom Line to an Eleven Bottom Line Approach

Description

The Willamette Water Supply Program (WWSP), a partnership led by Tualatin Valley Water District and City of Hillsboro in Washington County, Oregon, is developing a system to supply themselves and potentially other water providers in the region from a new source, the mid-Willamette River in Wilsonville. The new system will be designed for reliability and resiliency and will include over 30 miles of transmission pipelines, a new water treatment plant, pump stations and storage reservoirs. The WWSP's mission statement includes pursuing opportunities by coordinating projects with other agencies and municipal governments. These opportunities project can result in lower overall impacts to a community while delivering large infrastructure projects in a more cost effective way. Presentation will describe the two step Business Case Analysis (BCA) process and showcase potential projects where the WWSP used the BCA process to gain concurrence among stakeholders. Using a triple bottom line approach to make decisions allows managers of water systems to more efficiently make decisions that aren't based on just technical and cost information and instead include feedback from operation and maintenance staff and discuss public impacts. Additionally, including O&M staff in decisions allow the SOW of the project to address water quality, water supply and public health protection from the operators perspective, not just from an engineering perspective.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016 11:00:00 AM 11:30:00 AM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Corianne Hart

Presentation Title

Easy As 1, 2, 3: Coordinating One Site, Two Contractors, and Three Owners

Description

The Willamette Water Supply Program (WWSP), a partnership led by TVWD and City of Hillsboro in Washington County, Oregon, is developing a system to supply themselves and potentially other water providers in the region from a new source, the mid-Willamette River in Wilsonville. This presentation details the efforts of the WWSP to minimize public impact by coordinating the design and construction of a major transmission pipeline with other local construction projects. The Pipeline West 1.0 (PLW_1.0) segment of the WWSP includes overlapping work limits with two active road improvement projects, thus clouding typical project boundaries for construction work zones, environmental permits and traffic control. Methods are described to accelerate the PLW_1.0 project to meet known developer milestone, such as pre-purchase of pipeline materials and a modified design deliverable schedule, as well as public-private coordination efforts from the field. Presentation outlines and describes how managers of water systems can engage operation and maintenance staff in discussions about design and construction sequencing to meet third party schedules. Engaging operation staff early and often regarding construction sequencing can minimize delays during construction, especially when work includes tying into an existing system.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016 11:30:00 AM 12:00:00 PM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Bryan Black

Presentation Title

Bend's New 10-mile High Pressure Raw Water Transmission Pipeline: Solutions for Permitting, Design, and Construction

Description

The City of Bend has been working over the last 6-years to plan, design, and construct its new 10-mile raw water transmission pipeline. The pipeline has now been placed into operation. This presentation will address the City's motivations and process for deciding to build the new pipeline. The pipeline required a significant amount of permitting with US Forest Service, Department of State Lands -- permitting considerations and strategies will be discussed. The pipeline includes areas with high pressure up to 430 psi and special design considerations. Steel, HDPE, and ductile iron materials were all used and this presentation will describe drivers behind material selections, including the pressure surge analysis. The steel pipeline mortar lining drove the pH of the raw water up to 12.4, requiring special handling for neutralization, disposal and treatment. This presentation will provide an overview of the permitting, design, and construction of the new water supply pipe. Managers will be interested in understanding the city's motivations for constructing the new raw water pipeline, pipeline procurement methods, and permitting. Operations will learn about high pressure pipeline operation including flow and pressure control, along with potential water quality problems and solutions.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016	1:00:00 PM	1:30:00 PM	Location	CEUs
			D	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Engineering	David Seymour

Presentation Title

Your Best Laid Plans Will Change: Managing and Resolving Change Orders During Construction

Description

Construction of a municipal project is the culmination of countless hours of planning, design, and a commitment of financial resources. Seeing your ideas and hard work transform into functioning infrastructure is incredibly rewarding, but the process can also be incredibly frustrating when things don't go according to plan. Changes during construction are an inevitable outcome that owners, operators, engineers, and construction managers must deal with. These changes can produce high-stakes, high-pressure, contentious situations that must be worked through by the project team. This discussion shares experiences and lessons learned in managing and resolving construction change orders on several treatment plant projects, in order to provoke thought and help others be more prepared for dealing with change on their own projects. Resolving construction change orders and their financial impacts relate to the training topics of utility management, rate setting, and financial viability. Operations staff that are involved in construction projects may desire changes to be implemented to the design during construction, and these changes would be addressed in the change order process. A general understanding of the change order process would be helpful to any utility embarking on or involved in a capital project.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016 1:30:00 PM 2:00:00 PM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Joelle Bennett

Presentation Title

Managing Change in Pipeline Routing

Description

The regional Willamette Water Supply System (WWSS) will provide additional resiliency and redundancy to the water supplies of the City of Hillsboro and the Tualatin Valley Water District in Washington County, Oregon and other potential project partners. The WWSS will include a water treatment plant, terminal reservoir storage, and more than 30 miles of pipeline. This presentation will detail the efforts of the Program Team and agency partners to modify an approved pipeline route, and how the team navigated changes in routing that were made to reduce community impacts and construction challenges. Applicable to engineers and managers making pipeline alignment decisions

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016	2:15:00 PM	2:45:00 PM	Location	CEUs
			D	ID/OR/WA 0.05/0.05/0.05 Pending
Track			Author	
Engineering			Dan Johnston	

Presentation Title

Using Line-stops To Create Rural Water Service Zones From The Old 14-inch Transmission Main

Description

The City of Hood River was challenged to build a new 15-mile, 24-inch water transmission main in a new alignment with several rural customers along the route. The existing 14-inch main was generally built as the crow flies. The new 24-inch transmission main, however, was designed to follow County and State roads, and took a more linear and angular path to the reservoir. In some locations, the two mains were a long distance away, causing many homes to be far away from a new water connection. Initially, smaller diameter sub-mains were planned to reach these customers, however, it was soon discovered that the cost to build these submains for so few customers would be too great. The City and ABAM then devised a plan to segment the existing 14-inch main into six separate service zones. Line-stops were critical for the avoidance of long water outages and draining/filling times. From an engineering standpoint, this presentation addresses the engineering challenges with providing new water transmission for municipalities that are long distances from the source and have rural customers along the route. The design greatly impacts how the system is operated and maintained, and also impacts age-related water quality problems. Line-stop technology can be important for the success of this type of project.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016 2:45:00 PM 3:15:00 PM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Jeff Blakely

Presentation Title

Protect Your Pipe: Invest in the Next 100 Years

Description

This presentation discusses the benefits and limitations of the two latest technological advancements to become available in the domestic Ductile Iron Pipe market: Zinc coating and V-Bio Polyethylene Encasement. The presentation summarizes numerous technical publications, user experiences, and study results for both products. Much like cement mortar lining is to its interior, zinc coating and V-Bio will become the standard of protection for the exterior of Ductile Iron Pipe. It is imperative that the industry is aware of the available technology when determining how to invest for the next century of drinking water infrastructure, and how to care for it once it's installed.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016 3:30:00 PM 4:00:00 PM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Michael Norton

Presentation Title

Seattle Public Utilities' Critical Pipeline Protection for Sound Transit's Light Rail Northgate Link Extension

Description

The Seattle Public Utilities' (SPU) drinking water system serves 1.3 million customers. The system includes a critical 42-inch diameter steel pipeline in a north-south alignment through Seattle's University District, where Sound Transit is constructing the Light Rail Northgate Link Extension. Extensive coordination and oversight with Sound Transit and the contractor is required for multiple construction contracts-- including twin tunnels from Northgate Mall to Husky Stadium (which run parallel to pipeline). SPU tracks tunneling progress closely and developed emergency shutdown plans in the event of unacceptable settlement. In lieu of extensive shoring and dewatering, the contractor is using soil freezing beneath the pipeline in one location, requiring additional oversight, monitoring and contingency planning due to the potential for soil heaving. A portion of the pipeline was relocated adjacent to the Roosevelt Station, posing some sequencing challenges. This project had a major impact on SPU's distribution operations in and around the University District. Input from the distribution operators was key to sequencing construction. As a part of the coordination team, SPU's operators learned what was expected to happen during the construction, which enabled them to write plans to ensure smooth pipeline shutdowns, to bypass the pipeline and minimize the impacts of the pipeline relocation, and to prepare an emergency pipeline shutdown plan in the event of unacceptable soil settlement.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016	4:00:00 PM	4:30:00 PM	Location	CEUs
			D	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Engineering

Author

Matt Hickey

Presentation Title

Electric Water: PWB/Lucid Energy Hydroelectric Project

Description

The LucidEnergy and Portland Water Bureau Conduit 3 Hydroelectric Project included installing unique, patented turbines in the PWB's Conduit 3. The project minimized impacts to the neighbors and water supply operations as it was installed in conjunction with piping upgrades and PRV installation associated with the City's Powell Butte Reservoir project. The unique turbine technology does not require high head pressures but, instead uses existing available water flows in the pipe to generate electricity while causing minimal head losses in the pipe. The project involved challenging siting issues for the vault housing the turbines large electrical equipment, a fast track schedule, geothermal cooling designs and extensive coordination with several agencies and entities including PGE. Operators and water system managers will gain understanding about how to implement processes and coordinate with agencies to design and install a hydroelectric improvements in a water system. The unique delivery process and private/public partnering will be discussed. Also, information regarding facility siting considerations, utility coordination and how to identify potential opportunities for power generation in a existing water system will be provided.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016 9:30:00 AM 12:00:00 PM **Location** **CEUs**
G Pending

Track **Author**
Water Treatment TBD

Presentation Title
City of Kennewick Columbia River Water Treatment Plant Tour

Description
City of Kennewick Columbia River Water Treatment Plant Tour

CEU Comment
Must attend full session for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 3, 2016 1:00:00 PM 3:30:00 PM **Location** **CEUs**
G Pending

Track **Author**
Water Treatment TBD

Presentation Title
West Pasco Water Treatment Plant Tour

Description
West Pasco Water Treatment Plant Tour

CEU Comment
Must attend full session for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016	1:30:00 PM	2:30:00 PM	Location	CEUs
			E	ID/OR/WA 0.1/0.1/0.1 Pending

Track

Cross Connection

Author

Jeff Kinney

Presentation Title

Cross Connection Control: Albany's Experience

Description

This presentation gives an overview of the cross connection program for Albany. How we meet the regulations of cross connection .The presentation highlights Albany's program handling the upgrade of old fire lines in the core area of the water system. Retrofitting backflow protection on old fire lines is a very common issue in public water systems. The City of Albany has found a way to make this difficult task be a win-win for both the customers and the City. Operators will learn tactics that they may be able to apply to their own systems and reduce the risk to water quality posed by older fire lines that don't see much use.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016	2:45:00 PM	3:45:00 PM	Location	CEUs
			E	ID/OR/WA 0.1/0.1/0.1 Pending

Track

Cross Connection

Author

Mary Howell

Presentation Title

Public Education and Your Cross Connection Control Program

Description

No matter what your role is in the field of cross connection control, the best way to ensure that your cross connection control program (CCCP) will be cost-effective and legally-defensible is through public education. Taking the time to create, distribute and follow-up on public education materials is a crucial piece of any CCCP. The time you invest will be rewarded many times over in the form of fewer cross connections and backflow incidents. Public education can also prevent being held liable in a lawsuit. Plumbing/Building inspectors and water purveyors have mutual customers. These customers will appreciate being kept informed and made to feel that they are helping to keep their drinking water clean and safe. This presentation is suitable for Cross Connection Control Specialist and Distribution/operator CEU's.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

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			E	ID/OR/WA 0.1/0.1/0.1 Pending

Track

Cross Connection

Author

Garrett Yates

Presentation Title

Reduced Pressure Principle Backflow Assembly “What is it? How does it work?”

Description

This presentation will take an in depth look at the reduced pressure principle backflow assembly. This assembly is the highest level of mechanical protection for preventing backflow. It can easily be misunderstood and considered complicated by many. What will be presented is an overview of what it is, how it should be installed, how it works and how to field test it. Regardless of a person’s level of experience with backflow prevention preventers, the attendee will walk away with a better understanding of this assembly. This presentation will give Cross Connection Specialist and testers relevant information to go towards their certifications.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 1:30:00 PM 2:30:00 PM **Location** **CEUs**
B ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
Customer Service John Roth

Presentation Title
Customer Service & Operator's Perspective

Description

Water is a commodity and consumers will often have questions and disputes. Our users are always referred to as customers, it's part of the business. Consumers/customers make up the majority of, if not all of the members of our governing boards. How viable or how effective would our water utilities be if we alienated our customers? Customer service affects funding; it creeps into our operation as folks are deployed to answer calls or complaints. When is the last time a customer tipped you off to an issue such as leak, water theft, garbage/trash around a building, or pollution? Have taste or odor complaints ever led to closer scrutiny of processes, treatment, or delivery? You see, customer service is essential to water quality through funding, observations, and feedback. We have multi-layered programs like wellhead protection, cross connection control, construction standards, and monitoring to protect water quality. Customer service is simply another layer in that multilayered approach. The purpose of this presentation is to provide an operator level perspective of customer service, what it is and what it isn't. We'll talk about services, and look at some practical examples, tips and ideas. The goal is help you "think" a little more about how an operator can make a positive impact towards customer satisfaction, how an operator can use information from the customer to improve O&M practices to avoid repeated complaints, and to build public trust in the utility.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 2:45:00 PM 3:45:00 PM **Location** **CEUs**
B ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
Customer Service Brett Foreman

Presentation Title

A Better Path to Advanced Metering Infrastructure

Description

Water utilities in the Pacific Northwest region are increasingly evaluating new interval metering technologies. What about the 85% of utilities that haven't yet implemented an AMI solution? What about those utilities that have decided to switch to AMI, but what do the utilities do during the transitional time through the multi-year process? This is when utilities should be looking to customer communication solutions to ease this transition. This session will provide technological solutions available during a multi-year rollout. We'll focus on how these same benefits that are usually associated with AMI can also be had by utilities with older metering technology as well as utilities with multiple types of metering systems. Utilities can still analyze consumption data and deploy direct customer communications and other system critical activities that improve customer satisfaction and drives users to digital communication channels. This session is relevant to operational and managers of a water system to influence water supply and public support. Learn how improved customer engagement isn't dependent on the availability of interval data but is a precursor to such investment. Information-based engagement programs are highly cost-effective, yield operational savings, and reduce the political efforts required to implement larger scale infrastructure programs. This is a logical step for any utility looking to further engage customers, increase satisfaction, and make needed investments to improve system reliability and reduce costs.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 4:00:00 PM 4:30:00 PM **Location** **CEUs**
B ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Customer Service Yone Akagi

Presentation Title

Setting Up a Customer Sampling Program - One Utility's Experience

Description

One of the recommendations from the National Drinking Water Advisory Committee to EPA regarding the Lead and Copper Rule was to "modify monitoring requirements to provide for consumer requested tap samples for lead and to utilize results of tap samples for lead to inform consumer action to reduce the risks in their homes, to inform the appropriate public health agency when results are above a designated household action level, and to assess the effectiveness of CCT and/or other reasons for elevated lead results". The Portland Water Bureau has had a free customer lead sampling program in place for many years. Over the last few years, we have had an average of 1000-2000 requests/year. In 2016, we expect to have over 10,000 requests. Many utilities might be looking to set up a customer sampling program in the future. This presentation will walk through how Portland's program is set up, outreach around the sampling program and lessons learned, especially over the last year. Systems might be interested in setting up their own customer sampling program to better understand corrosion control in their system. This presentation will give insight and tips learned from Portland's experience setting up and running such a program.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 4:30:00 PM 5:00:00 PM **Location** **CEUs**
B ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Customer Service Tonya Reiss

Presentation Title

Achieving Good Internal Customer Service is Essential in Every Organization

Description

Achieving good internal customer service is a vital part to providing quality customer service to your external customers. External customers being homeowners, businesses, developers, regulators, contractors and the many others that work to create a thriving community. This presentation will show that achieving good internal customer service through creating clutter free processes, good standard operating procedures, and viable two way communication within your organization you will be meeting the needs of your external customers. This will assist your organization when doing the daily operations & maintenance to provide a quality & safe product to your external customer in a consistent, predictable and reliable manor that is vital to public health.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 7:15:00 AM 7:45:00 AM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Aurelie Nabonnand

Presentation Title

Optimizing System-Wide Flushing with a UDF Pilot Plan

Description

Water utilities are always looking for ways to improve water quality and service standards. Unidirectional flushing (UDF) is an effective method to scour pipes and remove sediments and biofilms by creating dedicated high velocity flow paths through isolated segments of the system. The City of Salem (City) currently conducts conventional flushing as needed for water quality purposes. The City challenged itself to implement a system-wide UDF plan to improve and maintain overall system water quality and provide maximum flexibility in system operation. A UDF plan should be well designed prior to implementation to ensure a successful program while providing safe conditions for operators and the public. The City developed and implemented a Pilot Plan for a small area as a test for developing a UDF program for their entire distribution system. The Pilot Plan helped the City refine and optimize parameters, and implement lessons learned to customize the system-wide UDF program to their needs. Unidirectional flushing (UDF) employs the use of both valves and fire hydrants to flush specific pipes in the system. The utility operator's knowledge of the system is essential in the development and implementation of a UDF plan. The success of implementing a UDF plan, once it has been created, is in the hands of the field crew. Once the correct valves are closed and hydrants are operating, it is the job of the field crew to determine when the flush is complete. This presentation will detail the different considerations and flushing parameters used and refined and address challenges and lessons learned during the development and implementation of the pilot UDF plan for the City of Salem (City). The goal for this presentation is to benefit utilities facing similar challenges of implementing a system-wide UDF program.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 7:45:00 AM 8:15:00 AM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Aurelie Nabonnand

Presentation Title

Unidirectional Flushing: A Return on Experience

Description

The City of Auburn (City) is centrally located between Seattle and Tacoma, Washington and serves approximately 29.8 square miles. Over the years, precipitated manganese settled in portion of the distribution system, resulting in limitations on operational flexibility and impacts to general water quality. The City already implemented a Unidirectional Flushing (UDF) Program for both Lea Hill and Valley Service Areas, which represent more than 85 percent of their total system in term of demands. This paper will outline the benefits of UDF for operations and water quality, discuss flushing parameters and key considerations that should be addressed during planning, and document lessons learned from City staff during the implementation of the UDF program. Carollo's experience with developing UDF programs in other states will be used to compare and contrast considerations and lessons learned based on climate, land use patterns or development, seasonal population variation. Unidirectional flushing (UDF) employs the use of both valves and fire hydrants to flush specific pipes in the system. The success of implementing the UDF plan, once it has been created, is in the hands of the field crew. Once the correct valves are closed and hydrants are operating, it is the job of the field crew to determine when the flush is complete. The utility operators knowledge of the system is essential in the implementation of a UDF plan. Implementing a UDF Program is a great way to improve water quality and pipe capacity in the system, but also operates valves and hydrants in the entire system. This presentation will focus on lessons learned on all aspects of the flushing program. These include activities needed prior to flushing, reducing "door tagging" through alternate means of public notification, locating missing valves, and ways the City can increase flushing efficiency.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016	1:30:00 PM	2:00:00 PM	Location	CEUs
			C	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Distribution	Mike Amburgey

Presentation Title

From Layups to Dunks: Rezoning for Operational Efficiency Without Impacting Critical Customers

Description

The Covington Water District (District) is a special purpose district responsible for providing safe and reliable drinking water to its customers in the Seattle-Tacoma Metropolitan area. Similar to many utilities in the area, the District has changed from a rural residential to a suburban character. The District is rezoning their largest pressure zone to better serve its changing character. The 700 Rezone Project aims to increase operational flexibility, improve water quality, and reduce planned capital expenditures. The District's approach and lessons learned will be presented, including how active capital projects were incorporated into the rezone project. District operations staff will share how their input helped identify potential water quality and supply impacts of the rezone, as well as reduce capital improvements. Finally, the project phasing being implemented to construct the project within available capital funds will be shared. The presentation will provide the Covington Water District's approach and lessons learned to a project that impacts operation and management of the their water system. The lead presenter is a certified operator that will discuss water supply and water quality aspects of implementing changes to the distribution system (pressure rezoning). The presentation will provide practical considerations management of the system, including of tanks, valves, and piping. Technical information will show how the District considered public health protection when choosing its preferred pressure rezoning option. The presentation will be applicable to operators, engineers, and management staff.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 2:00:00 PM 2:30:00 PM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Sam Adams

Presentation Title

Three Birds with One Stone: Water System Planning, Operations & Maintenance Manual Updates, and Asset Management

Description

The City of Camas is located in southwest Washington along the Columbia River and serves over 20,000 residents. The City faces anticipated rapid growth in its periphery and aging infrastructure in its urban core. In addition, the completion of a new treatment plant will fundamentally change system operations. To address these issues, the City is completing three major water planning efforts simultaneously: a Water System Plan Update, a Condition Assessment, and an Operations & Maintenance Manual Update. Hydraulic modelling of the City's distribution system will identify improvement projects and operational recommendations to improve system operation. The results of the condition assessment will be used to prioritize these projects and to develop a more comprehensive capital improvements program. Updating the Operations & Maintenance manual will ensure that institutional knowledge is captured according to the City's succession planning for key personnel reaching retirement age. The lessons learned from this project are broadly applicable to water providers throughout the Northwest, which face challenges with aging infrastructure and a workforce that is preparing for retirement. The efficiency provided by updating planning and operations documents simultaneously is valuable to water system management. Certified operators will gain insight to the importance of documentation in planning and the key role that they have to play in transferring knowledge so that their water systems will continue to operate well in the future.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016	2:45:00 PM	3:15:00 PM	Location	CEUs
			C	ID/OR/WA 0.05/0.05/0.05 Pending
Track			Author	
Distribution			Paige Igoe	

Presentation Title

Resurrecting A Unidirectional Flushing Program: Getting the Program Up and Running

Description

In 2016, a uni-directional flushing (UDF) program was resurrected by SPU to improve water quality in West Seattle. The program was implemented due to an uptick in discolored water complaints, which received media attention. The flushing loops were created using the water system hydraulic model, GIS and system operations knowledge. Limitations in water system infrastructure, including limited valves and a true pipe grid, made loop development challenging. A water quality sampling program was implemented to monitor levels of microbiological activity and inorganics. Comprehensive coordination with drainage staff was required to determine where flushing water was being discharged. In an ongoing effort to use flushing as a tool to improve overall water quality, SPU is also pursuing a pilot program with the neutral output discharge elimination system (NO-DES) technology in the fall of 2016. This is the first half of a two-part presentation on SPU's flushing program. The development of a strict UDF program for a system of this size requires significant preparation and coordination up front. The major steps used to develop the flushing loops and the overall program will be outlined in the presentation. The presentation will include the criteria used to develop the strict UDF loops. Examples will be provided of the documentation developed for the flushing loops (including the maps and log sheets developed for the field crews) and forms/spreadsheets developed to summarize results. An inventory of the field equipment used for the program will be detailed. Significant coordination with field crews was required to make this program successful, especially for troubleshooting when problems were encountered in the field. A summary of the training provided to the crews and lessons learned in the field will be discussed.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 3:15:00 PM 3:45:00 PM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Dave Muto

Presentation Title

Resurrecting A Unidirectional Flushing Program: The Real Cost Of Deferred Valve Maintenance

Description

SPU's flushing program and its valve maintenance program were suspended for many years. In 2015, a combination of rarely-used groundwater and changed flow patterns generated on-going colored water and dirty water complaints in much of West Seattle, which has a high percentage of unlined cast iron pipe. The complaints attracted significant neighborhood media attention. In response to customer concerns, SPU planned to flush much of the West Seattle distribution system. This presentation will showcase difficulties encountered in doing so due to the lack of routine line valve, blow-off valve and hydrant maintenance. This is the second half of a two-part presentation on SPU's flushing program. Unidirectional flushing programs that maintain & improve system water quality rely upon operational valves to direct flow in specific directions, & hydrants or blow-off valves that can discharge enough volume to remove sediments from the main. Crews often could not perform flushes as scheduled, because valves were paved over, did not operate, were discovered in the closed position, or because of changed conditions downstream of flushing discharge points that could (or did) cause flooding, or could no longer be used because of environmental impacts or sewer problems. Lack of routine O&M meant lack of information, which resulted in plans relying upon faulty information, delays in implementation, & increased costs. Clear illustrations of the negative results of deferred O&M reinforce its importance to operators who care for the system, to managers who budget for O&M, & to officials who make funding decisions.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 4:00:00 PM 4:30:00 PM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution David Stanley

Presentation Title

Meeting the new guidelines for main break classifications and BMPs.

Description

In response to efforts in Washington State to standardize communications and response efforts, a need was identified to classify water main breaks and BMP's in terms of the public health significance. SPU has developed four (4) categories of main breaks and repair protocols for each. The discussion will include a break down of each category and its associated repair procedure, the Boil Water Advisory protocols along with mitigation techniques and Public Relations solutions. The audience will learn how to classify each main break, what procedures need to be followed and answer the question of the boil water advisory.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 4:30:00 PM 5:00:00 PM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Nathan Morgan

Presentation Title
Large Diameter Wet Taps Vs The Cut and Section

Description
I would like to go over the pros and cons of the large diameter wet taps and the cutting and sectioning of a water main for hydrant replacements. Also I will cover the different tools and parts needed to do both, along with the different procedures for both. I will cover how to disinfect the parts and how each process impacts service to the customers.

CEU Comment
Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 7:15:00 AM 7:45:00 AM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Bill Carr

Presentation Title

Water Supply Power Optimization

Description

SUEZ is currently participating in a Water Supply Optimization Cohort sponsored by the local electrical utility Idaho Power. This presentation will cover that program and will detail how operators can achieve electrical power savings throughout their facilities using some simple and inexpensive tools & methods and more complex strategies, tools & methods. I will present our energy profile, water model examples, energy projects completed and savings realized to date. I will also review the rebates available under the Idaho Power program. Operators will leave the presentation with tools and strategies that enable them to save power at their own facilities and help to reduce cost of service to customers. One of the biggest costs in operations of a water utility can be the electrical energy used for pumping, compressors, blowers and other plant equipment. This presentation will show operators practical and inexpensive ways to evaluate their equipment and methods of plant and system operations, in order to find and implement power cost savings. These methods also increase reliability and redundancy of plants, pumps and equipment by promoting better maintenance practices and routine analysis of performance.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016	7:15:00 AM	8:15:00 AM	Location	CEUs
			B	ID/OR/WA 0.1/0.1/0.1 Pending

Track	Author
Engineering	Lynn Stephens

Presentation Title

Community Engineering Corps®: Two Case Studies from the Pacific Northwest Section

Description

Community Engineering Corps® (CECorps) brings underserved communities and volunteer engineering leaders together to advance local infrastructure solutions. In this session, two projects with CECorps occurring in the Pacific Northwest section will be discussed. Both projects are at elementary schools in Washington. The first project is helping an elementary school with iron, manganese, organics, and arsenic in their raw water. The second project focuses on periodic lead excursions at another elementary school. The session will describe these two projects and how volunteers came together to help these two schools. The session will also showcase ways that volunteers in the PNWS-AWWA can get involved. Session attendees will learn about a new volunteer program to help underserved communities in the Pacific Northwest. The session will talk about treatment options for water quality issues and options to tackle lead contamination at the faucet.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 7:45:00 AM 8:15:00 AM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Christopher Augustine

Presentation Title

Pilot Testing of Thermal Aquifer Storage and Recovery for Industrial Water Supply

Description

Boise White Paper, LLC (Boise), in collaboration with the Washington Department of Ecology (Ecology), tested aquifer, storage and recovery (ASR) for the purpose of thermal storage at its facility in Wallula Washington. The project would store cold Columbia River water in the winter and spring months and then recover the stored water during the summer months when the temperature of the Columbia River becomes warmer. Conceptually, the project had two main benefits: a reduction in operational costs for cooling of process water and reduction in surface water diversion during summer. By taking the advantage of the cooler stored water the facility would realize a tremendous savings in operational costs. Boise drilled, constructed and tested a large diameter highly productive water supply well with a target yield of 4,000 gallons per minute to meet Boise operational demand. A small scale pilot testing program was developed to characterize the hydrogeologic, geochemical and thermal properties of the target Columbia River Basalt aquifer and meet Ecology ASR permitting requirements and anti-degradation rules. The aquifer conceptual model and pilot testing approach evolved as the project progressed based on warmer geothermal conditions being present in the target storage zone. The pilot testing results of the Boise ASR system demonstrated several challenges and highlighted several key concepts for the successful development and operation of thermal ASR systems in complex geologic and hydrogeologic settings.

CEU Comment

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			D	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Engineering

Author

Kari Duncan

Presentation Title

Commissioning on Steroids in Lake Oswego and Tigard: How We Commissioned 6 Major Facilities, Started Supply to a New City, Maintained Existing Operations, and Lived To Tell About It!

Description

The Lake Oswego and Tigard Water Project (LOTWP) is a \$254 Million regional water supply project to replace and upsize a River Intake Pump Station, Water Treatment Plant, Reservoir, Pump Station and miles of 36-48" transmission pipeline between the Summer of 2013 and the Spring of 2017. Water supply facilities were replaced and expanded from 16 MGD to 38 MGD. The water treatment plant construction included a challenging 3 phase construction schedule to maintain water supply while new treatment processes were constructed in the same footprint as the old processes in a constrained site. All new construction occurred while keeping the existing treatment and supply facilities online. This presentation will cover the commissioning process for multiple concurrent facilities and how operations staff, engineers, and contractors worked together to transition from old to new supply facilities without interruption of water service. This presentation describes how water treatment and distribution operators maintained water operations and met regulatory requirements under the SDWA during the challenging conditions of construction and commissioning.

CEU Comment

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May 4, 2016 2:00:00 PM 2:30:00 PM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Jeff Ashley

Presentation Title

Chinook WTP: Challenges With Treating The Milk River

Description

The City of Chinook, MT has used the Milk River for its water supply since the 1930's. The Milk River is infamous for periods of high turbidity (thus the name Milk), heavy sediment loading, and recently very high organic conditions. The WTP just completed a major upgrade to address recent compliance issues with disinfection byproducts, and also improve treatment reliability. The upgrades include raw water pumping, pre-sedimentation, new conventional filtration, ultraviolet disinfection, electrical and control upgrades and chemical feed systems. The improved treatment system provided the City many tools to accommodate the volatile raw water conditions in the Milk River, focusing on organic carbon removal, and thus minimization of disinfection byproduct formation. The presentation will discuss initial planning, bench scale jar testing results, pilot testing results, construction issues and sequencing, startup and commissioning, and the first several months of operation. The attendees will learn about what the City of Chinook is doing to treat their only water source, the Milk River. The plant upgrades include many operational tools and flexibility to meet the changing raw water conditions.

CEU Comment

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May 4, 2016 2:45:00 PM 3:15:00 PM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Qianru Deng

Presentation Title

Sludge Lagoons in the Northwest: Is the Tried-and-True Still Applicable?

Description

A number of new water treatment plants in the Northwest have installed mechanical dewatering recently. While lagoons remain the lowest capital cost option, are these destined to be phased out of use in the Northwest? This presentation will evaluate operation of existing lagoon facilities in the PNW and other regions, including the climate, solids loading rates and operational challenges, and discuss the implications for design of lagoons at new facilities in the PNW. This presentation will discuss design implications, operation and optimization of sludge lagoons in the Northwest.

CEU Comment

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Track

Engineering

Author

Nikki Mayer

Presentation Title

Evaluating membrane filtration performance guarantees

Description

The City of Lebanon recently completed the design of a new 4.5 MGD surface water treatment plant. The plant will utilize membrane filtration as its primary filtration and disinfection process. The membrane system was selected on the basis of lifecycle costs, derived from membrane system process guarantees provided by bidders. To enforce these guarantees, the procurement contract documents included liquidated damages for failing to meet capacity, energy use, and chemical use guarantees. Performance guarantees will be evaluated in three phases: firstly in a sort duration "proof pilot" scale test, then a short-term 7-day test performed at the end of the construction period, and lastly during a 6-month, post-construction performance test. The presentation will include details of the procurement approach as well as a summary of pilot results and how the results were used to evaluate membrane performance criteria. This presentation is relevant for all water treatment plants currently operating or considering the future construction and operation of a membrane filtration system. It will provide valuable information into the membrane procurement approach and decision making process with examples from applicable, first-hand experience. More specifically, the discussion of the pilot testing data and results will help operators and management understand how to best evaluate performance guarantees from membrane suppliers.

CEU Comment

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Track

Engineering

Author

Kim Ervin

Presentation Title

Rapid Alternative Screening and Facility Planning for Project Definition at the JWC WTP

Description

The Joint Water Commission (JWC) WTP, which serves the communities of Hillsboro, Tualatin Valley, Beaverton, and Forest Grove in Oregon, has been operating at or near the current plant capacity in the last few years. Much of the plant is also located on liquefiable soils, leaving it vulnerable to an earthquake. The JWC began a project to expand the WTP to 85 mgd by 2019 and then plans to address significant seismic issues in the next 10 years or so. The beginning of the project included a facility plan process to assess previous studies and select the preferred project for implementation. This presentation will discuss both the process of performing this fast-paced facility plan as well as the priorities and decisions that came about as part of the plan. This topic is applicable to operators and engineers as it will consider treatment, pumping, storage, and conveyance alternatives and project prioritization to meet multiple objectives.

CEU Comment

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Track	Author
Engineering	Austin Peters

Presentation Title

Advancing the Design of a New 60 MGD Water Treatment Plant

Description

Construction of a new water treatment plant (WTP) is one of the key elements of the Willamette Water Supply (WWS) Program, in its continuing effort to effectively meet the long term needs of its partner agencies. As the WTP design moves from boxes on a planning figure to more detailed layouts and drawings the program team must carefully balance multiple factors such as site constraints and permitting requirements, treatment and resiliency objectives, constructability, and ultimately operations. This presentation will highlight the dynamic tools and processes used to begin realizing these goals, setting the stage to produce a reliable and resilient WTP that is both elegant and efficient. The regional WWS will provide additional resiliency and redundancy to the water supplies of the City of Hillsboro and the Tualatin Valley Water District in Washington County, Oregon. The WWS will include a water treatment plant, terminal reservoir storage, and over 30 miles of pipeline. By understanding the decision making processes, multi-discipline considerations, and engineering that goes into the development of new water treatment facilities water system managers as well as O&M staff can better understand how they too can upgrade their existing infrastructure or invest in new infrastructure. While focused on a specific project, the lessons learned from this endeavor have broad applications to water treatment infrastructure in general, trends in the industry and the latest steps being taken for the protection of public health and the natural and built environment.

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Track

Historian

Author

Catherine Howells

Presentation Title

History of Tri-Cities Water

Description

This will be an early bird session. The histories of "How We Got to Where We Are" are an integral part of telling the stories of our aging infrastructures. This session will bring together speakers from the Tri-Cities water utilities to share their unique old photos and challenges of building their systems. This session has been presented at several of the conferences to highlight the histories in the area of the conference itself. Understanding decisions that were made in the past leads us to make more informed decisions in the present. Water systems rarely change their source water once that decision is made, nor do they re-engineer their distributions systems. However, as population, regulatory, and climate pressures increase (not to mention aging infrastructure), so do the needs to have a more modern system. All of these factors can be discussed throughout the history of the system to give current water system professionals and the general public a great understanding to inform decisions.

CEU Comment

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Track

ORWARN

Author

Richard Wolf

Presentation Title

When The Oil Train Comes Knocking - Derailment and fire at the Mosier WWTP

Description

A day by day pictorial and narrative of a unitized bakken crude oil train derailment and fire in Mosier, Oregon. Over 25,000 gallons of oil spilled into the wastewater treatment plant directly affecting every resident of this small community. This presentation lists the steps and actions taken to isolate, decontaminate and recommission the City's WWTP. Issues involving the City's water system for fire protection.

CEU Comment

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Track

Research

Author

Andrew Nishihara

Presentation Title

Treatment in a Trailer: Tool for Resiliency

Description

As utilities face challenges with aging infrastructure and water supply source security, water treatment trailers may be used as a viable emergency response planning tool. Treatment trailers can come in a variety of sizes, range of mobility, capacity, and processes, so it is critical to ensure that their specified design will produce and deliver safe drinking water during an emergency. This presentation will address key design considerations, and go over lessons learned from PNW utilities with treatment trailers. Risks and threats to the security of a utility's water supply/watershed can come in many forms. To name a few: toxic algae, wildfires, earthquakes, chemical spill, extended power outage, or other groundwater/surface water contamination. Having portable water treatment trailer(s) available for a utility can greatly mitigate risks and allow for flexibility to respond during severe events. This presentation can help utilities and utility workers weigh the pros and cons of whether or not a treatment trailer is right for them, and think about response times during an emergency. It also provides information about things to consider during procurement and design of an emergency trailer to ensure it will be able to deliver safe, clean, drinking water to their customers.

CEU Comment

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G ID/OR/WA 0.05/0.05/0.05 Pending

Track

Research

Author

David Peters

Presentation Title

Water System Resilience

Description

The Portland Water Bureau has always had an eye towards reducing the risk of natural hazards impacting the ability to provide water. With the development of the Oregon Resilience Plan the Water Bureau has taken a renewed look at its ability to provide water after a major seismic event. Mr. Peters will present an overview of the work that the Bureau has done over the past 20 years to reduce risks to natural hazards and discuss the types of things that might be done in the future to further reduce risks to natural hazards. This presentation will provide information and concepts that other utilities can utilize in making their water systems more resilient. The presentation will cover how one utility has implemented these concepts. The presentation will also cover one approach to complying with the Oregon Resilience Plan.

CEU Comment

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G ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Research Yone Akagi

Presentation Title

Portland's Recent Experiences With the Lead & Copper Rule: An Extension Education & Outreach Program, A Corrsion Control Study, & Working With Schools & Other Public Facilities to Test For Lead

Description

The presentation will give a background on the Lead Hazard Reduction Program -- Portland's unique compliance program with the Lead and Copper Rule (LCR), which focuses on treatment, customer sampling, and education and outreach on all sources of lead. It will also discuss the recent Corrosion Control Study we have undertaken in an effort to better understand the mechanisms of corrosion in our system. Finally, discussed will be recent sampling in Portland Public Schools and other public facilities, as well as next steps for Portland's Corrosion program. Many of the education and outreach components of the LHRP are in line with recent recommendations for the NDWAC to EPA. Other water systems could benefit from Portland's experience in these areas. Also, findings from our corrosion study may be of interest to systems with similar water quality and/or distribution systems. And Portland's experience working with schools, daycares and other public facilities will provide lessons learned to other utilities if they plan to assist their customers in testing for lead.

CEU Comment

Must attend full hour for CEUs

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G ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Research Craig Downs

Presentation Title

No Good Deed: Tacoma Water's Search for Lead Goosenecks

Description

In April 2016 Tacoma Water began a pilot study to investigate the potential of using water quality testing to identify if lead goosenecks were present at customer service connections. After receiving unexpectedly high results from this initial testing Tacoma Water conducted extensive additional testing to better understand the current risk of lead exposure in the homes with lead goosenecks. The lead investigation and response generated extensive media coverage and was conducted in coordination with state and local health departments using a Unified Command under the Incident Command System. Following the conclusion of the initial event, Tacoma Water has implemented a program to offer customer lead testing, and is proceeding with plans to remove all remaining lead goosenecks within 5 years. This presentation will cover Tacoma Water's experience implementing a voluntary lead sampling protocol, which resulted in unexpected results. These unexpected results triggered public notification, additional testing, and activation of an Incident Command System using Unified Command with multiple health agencies. The information is particularly relevant to the operation and management of a public water system, especially related to risk communication around the topic of lead and implementation of water quality sampling protocols.

CEU Comment

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May 4, 2016 4:00:00 PM 4:30:00 PM **Location** **CEUs**
G ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Research Sam Perry

Presentation Title

Opportunistic Premise Plumbing Pathogens: Applications of the Safe Drinking Water Act to Buildings

Description

Control of opportunistic premise plumbing pathogens (OPPPs) is a new frontier in the quest for ever safer water supplies. These OPPPs include organisms like Legionella pneumophila and nontuberculosis mycobacteria (NTM) that cause many thousands of illnesses every year in the United States. There are measures building owners can take, some of which may also carry increased risks and trigger the application of the National Primary Drinking Water Regulations. Water supplies should be aware of what some building owners are considering as well as measures that they can take to reduce the risk of OPPPs proliferating in their systems. Control of opportunistic premise plumbing pathogens (OPPPs) is a new frontier in the quest for ever safer water supplies. These OPPPs include organisms like Legionella pneumophila and nontuberculosis mycobacteria (NTM) that cause many thousands of illnesses every year in the United States. While most of the public health risk is from amplification of these pathogens in building plumbing, there are still actions that water supplies can consider to reduce the risk of OPPPs in their systems. In addition, water systems may want to be aware of some of the most common methods to control OPPP risk, so that they can take informed action to protect their distribution systems.

CEU Comment

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Track

Research

Author

Alex Mofidi

Presentation Title

Risk Assessment and Control of Legionella and Pathogens of Emerging Concern for Buildings and Small Systems

Description

Presentation will describe system design and operating conditions that may cause microbial regrowth risk for legionella and other emerging pathogens. Focus will be made on the conditions within small water systems and buildings. Discussion will include water quality risk assessment, operations and sampling needs, treatment options, and how to address technical challenges in implementing treatment. Many small water systems and buildings have challenges with low disinfectant residual and microbial regrowth. Furthermore, legionella and similar pathogens are an increasing concern. This presentation describes current developments in regulation of these emerging pathogens, techniques that operators and engineers can apply to control them, and how to maintain operating those systems to protect public health.

CEU Comment

Must attend full hour for CEUs

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May 4, 2016 7:15:00 AM 7:45:00 AM **Location** **CEUs**
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Track **Author**
Water Quality Kimberly Gupta

Presentation Title

Field & Laboratory Tests To Evaluate Nitrification In the System

Description

Because nitrifying bacteria are ubiquitous, nitrification is a process that affects most chloraminated systems to some extent. Nitrification, when left unchecked, can result in the loss of chlorine residual, increase in nitrate, as well as localized pH depressions. Monitoring for nitrifying bacteria themselves are difficult and costly, so indicator parameters for nitrification are often used instead. This presentation will discuss the basics of nitrification as well as methods (both lab and field) to detect it. PWB recently completed piloting a new piece of field equipment (Hach SL1000) that provides near real time data for several nitrification parameters including free ammonia and nitrite, and results of this pilot will be presented. Nitrification can indirectly result in regulatory compliance issues, affecting compliance with TCR, LCR, and surface water treatment rules. Understanding the causes of nitrification, as well as how to monitor for it, is essential for chloraminated water systems. The PWB recently piloted a new piece of field equipment for nitrification monitoring; results will be presented comparing lab results and field results for common nitrification parameters.

CEU Comment

Must attend full hour for CEUs

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May 4, 2016 7:45:00 AM 8:15:00 AM **Location** **CEUs**
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Track **Author**
Water Quality Ali Leeds

Presentation Title

UCMR4 - Where Are We Going and What Will We Find?

Description

The Unregulated Contaminant Monitoring Rule (UCMR) 4 is anticipated to be finalized in late 2016. This presentation will look at the finalized sampling requirements, utilizing the formal concerns expressed by AWWA as a backdrop for understanding the requirements and potential issues. The focus will be on algal toxins, including reporting limits and sampling thresholds, sampling locations, and applicability of data to drinking water quality. This presentation will discuss UCMR sampling requirements for drinking water treatment facilities throughout the nation, with a particular emphasis on the contaminants most likely to be of concern in the Northwest.

CEU Comment

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Track			Author	
Water Resource			Jennifer Cuhaciyen	

Presentation Title

Basin Studies: Projecting Impacts of Climate Change on Wwater Resources

Description

The Bureau of Reclamation conducts basin studies through the WaterSmart program to understand current water supply and demand imbalances and how these imbalances may be influenced by climate change. Studies have been conducted in many basins throughout the Pacific Northwest and have provided information on projected climate change impacts, potential water management alternatives, and the interconnected effects associated with such alternatives. This presentation provides an overview of current and ongoing studies and the ways in which these studies have provided lessons learned on understanding how climate change may impact surface and groundwater supplies. The purpose of Basin Studies is to evaluate current and future water management options recognizing the interconnected effects and tradeoffs associated with such options and the impacts of climate change. The information generated by these studies provides a broadly-shared basis for future water management in the basin.

CEU Comment

Must attend full hour for CEUs

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Track	Author
Water Resource	John Porcello

Presentation Title

Separating the Effects of Climate Change and Groundwater Pumping on Seasonal Low Streamflows in the Spokane River

Description

For decades, groundwater pumping from the Spokane Valley-Rathdrum Prairie Aquifer was thought to be the primary cause of declining summer flows in the Spokane River. To investigate this, the Spokane Aquifer Joint Board studied historic data on streamflows, groundwater conditions, climate, and water uses from the 1900s to the present, finding that land use changes and increased conservation efforts have actually lowered water usage and benefitted the river. The study then looked at historic changes in the snow hydrology of the river's contributing watershed and found that climate change—not groundwater pumping—is likely the dominant driver of recent streamflow declines, because of less snow accumulation and an earlier snowmelt. The findings have profound implications on water rights and supply resiliency planning, especially as groundwater-dependent communities and utilities look for creative ways to manage their resources for the long term. Because the study identified that the watershed's snow hydrology has a strong influence on summer low flows in the Spokane River, the condition of the snowpack is now becoming another indicator for water system operators and managers in the Spokane Valley to use in making real-time decisions about water supply management and the need to implement enhanced drought-year conservation programs. Certain purveyors are also considering how to move portions of their summer pumping to wells further from the river. The findings of this study are relevant to water system operators and managers in other basins with instream flow standards, and also have bearing on the design and planning of future mitigation and storage projects.

CEU Comment

Must attend full hour for CEUs

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May 4, 2016 2:45:00 PM 3:45:00 PM **Location** **CEUs**
A ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
Water Resource Julie Smitherman

Presentation Title

Climate Change – How Will It Impact Your Community's Long Term Water Supply?

Description

The City of Ashland will share their long term strategies for climate change related water supply challenges. Presenters will provide both long and term short term impacts related to recent unprecedented multi-year drought and how those lessons learned impact their long term water supply projections. This presentation is relevant to the management of a water system. The audience will learn about impacts of climate change that have potential to limit water supply and effective measures that municipalities are employing to mitigate these impacts. The presented information will help water managers identify climate-related risks to their water supplies and develop strategies to make their respective supplies more resilient to climate change impacts.

CEU Comment

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Track

Water Resource

Author

David Brown

Presentation Title

Yakima's Water Supply in Climate Change

Description

This presentation will discuss Yakima's water supply quantity, source, and vulnerabilities - specifically how they might be affected by droughts, water shortages, priorities, and climate change. The discussion will include an overview of the city's Aquifer Storage and Recovery (ASR) program and how it meets the future water supply need for Yakima. This presentation is relevant to the management of a water system. The audience will learn about impacts of climate change that have potential to limit water supply and effective measures that municipalities are employing to mitigate these impacts. The presented information will help water managers identify climate-related risks to their water supplies and develop strategies to make their respective supplies more resilient to climate change impacts.

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Track **Author**
Water Resource Brent Stevenson

Presentation Title

North Santiam Watershed Drought Contingency Plan: Collaborative Planning for Changing Conditions

Description

The Drought Contingency Plan is intended to identify crucial priorities for water and seek collaboration among the basin stakeholders for addressing these priorities during drought conditions. The DCP is funded in part by a Drought Contingency Planning WaterSMART grant from the Bureau of Reclamation (Reclamation). Reclamation has identified six key elements necessary for a DCP: Drought Monitoring, Vulnerability Assessment, Mitigation Actions, Response Actions, Operational and Administrative Framework, and DCP Update Process. This presentation is relevant to the management of a water system. The audience will learn about changing watershed conditions that have potential to limit water supply and effective measures that water managers are employing to mitigate these impacts. The presented information will inform water managers about the process and essential elements of a drought contingency plan.

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Track	Author
Water Treatment	Nancy Feagin

Presentation Title

Washington's Tracer Study Project

Description

The Office of Drinking Water identified a number of surface water treatment plants across Washington state as high priorities for tracer studies. Most of these facilities have an assigned hydraulic baffling efficiency of 0.3 or greater and are considered at greatest risk of overstating the disinfection contact time and thus potentially providing inadequate disinfection of treated surface water. This presentation will summarize the results of approximately 30 tracer studies conducted across the state to verify the accuracy of monitoring and reporting of the disinfection process at these plants. This presentation is relevant to all systems providing primary disinfection using a chemical disinfectant and a contact basin or clearwell. It is intended to challenge operators, engineers and managers to verify assumptions made when determining the adequacy of the disinfection process and to demonstrate the importance of accuracy of monitoring and reporting for public health protection. It will include lessons learned and tips for conducting tracer studies.

CEU Comment

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Track

Water Treatment

Author

Chris Kowitz

Presentation Title

Detection and Response to Cyanotoxins in the North Santiam Basin

Description

The City of Salem's Watershed Program is responsible for source water protection and water quality monitoring in the North Santiam Basin - Salem's sole source for drinking water. Salem utilizes slow-sand filtration for water treatment which requires the intensive monitoring of both green and blue-green algae populations throughout the watershed. This presentation will include monitoring techniques, analysis, latest research, and utility response to the presence of cyanotoxins in the watershed. This presentation will focus on detection methodology and potential ways to mitigate the effect of cyanotoxins if they are detected in the source water at the treatment plant. The focus will be on the effectiveness of toxin removal during treatment. A portion of the presentation will also focus on public health, data dissemination, and collaboration with other agencies.

CEU Comment

Must attend full hour for CEUs

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Track	Author
Water Treatment	Damon Roth

Presentation Title

How Changing Chlorine Residual Requirements Will Impact DBP Formation

Description

The Surface Water Treatment Rule (SWTR) currently only requires utilities to maintain a "detectable" chlorine residual, as demonstrated by a positive analytical detection or by maintaining a heterotrophic plate count (HPC) of 500/mL or less in the distribution system. In 2015, the Disinfectant Residual Strategy Panel convened by the American Water Works Association (AWWA) recommended that USEPA should consider establishing numeric minimum associated with each test method for disinfectant analysis, based on the likely field performance. If minimum numerical values are established, some utilities will need to increase chlorine dosages to meet these minimum values. This presentation will focus on laboratory testing conducted on 20+ waters to determine chlorine requirements and associated DBP formation, and the associated DBP formation modeling work that was performed. This presentation will inform operators and managers of potential forthcoming regulations, and will demonstrate the impact that those regulatory changes will have on systems. This presentation will also present new data on the relationship between chlorine usage and DBP formation, and will help reinforce this information for operators.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 2:45:00 PM 3:15:00 PM **Location** **CEUs**
H ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Water Treatment Benjamin Haws

Presentation Title

The Taste of Victory - Taste Testing to Find Lower Cost Solutions to Groundwater Treatment

Description

In 2014 the City of West Richland public works department began receiving phone calls from residents regarding the sulfur smell and taste of their drinking water – an existing and reliable well had suddenly developed a taste and odor issue. The City had initially planned to construct an expensive air stripping tower; however, the City's design team identified some lower cost solutions to consider. Several bench scale tests, including multiple taste testing panels, provided the feedback necessary for the City to make a decision on what type of treatment would be acceptable. Considering a balance of taste test results and capital cost, a chemical oxidation treatment was chosen and installed that has restored the taste of the well water at a fraction of the cost of the stripping tower solution. This presentation will briefly cover how pH and sulfide species are related. Operators with chemical oxidation systems or systems experiencing sulfide odors and taste can use this information to be aware of what to test for and treatment opportunities. The taste testing panel done in this project can also be emulated for other municipalities seeking treatment options that will provide an acceptable level of water quality. The presentation focuses on treatment techniques for sulfide in drinking water, and also provides a pattern for choosing treatment solutions through taste testing.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016	3:15:00 PM	3:45:00 PM	Location	CEUs
			H	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Water Treatment	Milton Larsen

Presentation Title

Evaluation and Preliminary Design of Aesthetic Water Quality Treatment Improvements

Description

Scotts Valley Water District has been treating their groundwater supply for ammonia, iron, manganese, and up to 5 mg/l hydrogen sulfide. Treated water from the Orchard Run WTP has musty and sulfurous flavors. The air stripper and odor scrubbing system release hydrogen sulfide at concentrations that are periodically perceptible at the property line, corrode metal structures and burn tree leaves in the vicinity. A taste and flavor panel was used to assist in the pilot testing evaluation of improvements. GAC contactors are planned for installation downstream of the iron and manganese filters. A soil bed scrubber with GAC polishing is planned to replace the scrubber downstream of the air stripping tower. The District is proactively taking measures to improve the aesthetic water quality with the goal providing water quality equivalent to or better than bottled or point of use treated water. Operators have actively assisted in the pilot testing of treatment alternatives. This presentation will educate operators on steps they can consider in improving aesthetic water quality.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016	4:00:00 PM	4:30:00 PM	Location	CEUs
			H	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Water Treatment	Bryan Black

Presentation Title

Bend's New High Recovery Membrane Filtration Plant: Overview and First Year of Operation

Description

Over the last 6-years, the City of Bend has been through design, construction, and startup of its high-recovery membrane filtration plant. This presentation will describe the considerations by the City in deciding to build a new membrane filtration facility. The raw water is high pressure (415 psi) and requires special considerations for pressure and flow control. The automated plant recovers 99.5% of its raw water supply as finished water, reducing waste and costs for backwash waste processing and solids handling. The design incorporates the latest approaches for seismic resiliency and energy conservation. The facility was placed into operation January 2016 and is completing performance testing and monitoring in July 2016. This presentation will describe the project, lessons learned, and treatment performance including water quality, energy, and chemical consumption. The presentation will highlight the state of the art in membrane filtration and water treatment plant construction. Operating and maintenance considerations will be described including operating procedures, performance, and energy / chemical consumption. Considerations by the City in deciding to build a membrane filtration plant will be discussed. This will help managers who are facing treatment needs for upgrade, expansion, or replacement of treatment facilities. Operators will learn techniques to reduce backwashing wastes, maintain excellent finished water quality including membrane integrity, and to protect water quality with continuous monitoring and chemical addition.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016	4:30:00 PM	5:00:00 PM	Location	CEUs
			H	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Water Treatment	Dan Hugaboom

Presentation Title

Inline Coagulation to Control DBP Formation in Membrane Filtration Plants

Description

Unlike media filters, microfiltration and ultrafiltration membranes can produce low turbidity filtered water from a range of sources without the use of coagulant. However, the technology has limited ability to remove dissolved natural organic matter (NOM) precursors to disinfection byproduct products (DBPs). To meet DBP regulations, feed water coagulation is often used to incorporate NOM into a filterable floc that can be removed by the membrane process. This can be done in a direct filtration mode (no clarification); however interactions with the membrane system must be considered. This presentation will discuss considerations for selecting pretreatment coagulants and coagulant doses required to meet DBP regulations. Common bench scale, pilot scale, and full scale screening methods will be presented. Results generated from studies of inline coagulation pretreatment will be presented from the City of Lebanon (OR), City of Lynden (WA), IRWD (CA) and MID (CA). Supporting data and detailed discussion of the methods for inline coagulation used at four different membrane filtration water treatment plants provides operators and management valuable information on how to optimally implement inline coagulation and the flexibility necessary to ensure their plant uses the most appropriate method. Coagulation is important to mitigate the formation of DBPs and so that membrane filtration can meet water quality goals.

CEU Comment

Must attend full hour for CEUs

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May 4, 2016	1:30:00 PM	2:00:00 PM	Location	CEUs
			F	ID/OR/WA 0.05/0.05/0.05 Pending
Track			Author	
WITC			Margaret Cassidy	

Presentation Title

Pipeline Assessment Technology For the Next Generation

Description

How many times have you been forced to pothole a line to find a tee, or a buried valve, or to just find out what size and material you are dealing with? How many times have you cut a section of perfectly good pipe out to inspect the interior? Before you fire up the backhoe again, try in-situ inspection. Using a hot tap, vent tap, or even a hydrant, today's pipeline assessment tool can give you up to 300 feet of continuous video, sonic, and location recording of your pipeline without shutting it down, draining, or depressurizing the system. Come learn how pipeline condition assessment can save you time and money. Conservation, water quality, system reliability, and cost savings are all positive outcomes of an active leak detection program. The new age of leak detection can move a system into the 21st century by truly managing your assets. Field crews can use this information to actively repair leaks rather than digging a dry hole. Knowing the type and size of leaks is instrumental in how you approach the repair and allows the best possible planning to insure water quality. Cost savings are realized from no longer producing large volumes of non-revenue water. Through this approach to conservation system development and expansion can occur that is both financially and environmentally sound.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 2:00:00 PM 2:30:00 PM **Location** **CEUs**
F ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
WITC Nicole Kaiser

Presentation Title

Integration of Emerging Technologies: An Innovative Approach

Description

Isle Utilities' extensive experience working with international technology developers, investors and end users offers a unique perspective on the evolving themes and approaches to technology innovation in the U.S. municipal water sector. The need for innovation is underscored by common challenges facing water agencies, and promising solutions are rapidly emerging. However, the road to technology development and implementation can be arduous. There are a growing number of resources to help technology end users effectively evaluate, improve, adopt and share solutions. Isle's Technology Approval Group (TAG) will be presented as one tool alongside complimentary innovation program models, and relevant case studies will highlight examples of successful innovation management portfolios from leading agencies. Professionals involved in the operation, maintenance and management of water systems will benefit from learning about industry resources and trends related to emerging technology adoption and evaluation. In the Water Technology Innovation Blueprint (V.2), US. EPA acknowledges factors that slow commercialization and recognizes the value in accelerating the delivery of qualified technologies through third party evaluation. Isle will explore these barriers and present best practices, such as strategic collaborations to bridge gaps across the technology development cycle. The audience will also benefit from Isle's global perspective through the introduction of relevant trends and observations from Isle's extensive experience with innovation programs in Europe and Australia.

CEU Comment

Must attend full hour for CEUs

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May 4, 2016 2:45:00 PM 3:15:00 PM **Location** **CEUs**
F ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
WITC Arnab Bhowmick

Presentation Title

Mobile, Cloud, & Cyber Security

Description

As more and more mobility is being introduced and the market gets inundated with smart devices and various OS, cyber threats are also increasing. Not leveraging cloud and mobility because of cyber threats is not the solution. It is important to go mobile and move to cloud hosted platforms (SaaS and PaaS) but in a safe and secure way. Local govt. is using more and more mobile apps and smart devices today. Understanding cyber threats and loopholes, and addressing cyber security components will lead to secure and productive implementations and roll outs. Every O&M, PW Ops, IT resources, department heads and managers should benefit from this presentation to become aware of cyber threats and tools/ methods to address them. Local govt. is going mobile and cloud, and that is the future. Its also important to do that in a secure way, and not thwart the progression. This will benefit overall operations efficiency and organizations' productivity by implementing mobile and cloud properly within the organization.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 4, 2016 3:15:00 PM 3:45:00 PM **Location** **CEUs**
F ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
WITC Jeremy Djajadi

Presentation Title

Utilizing Technology To Secure Critical Water Infrastructure To Comply With Regulations

Description

This presentation emphasizes on different options for water & wastewater utilities in securing their critical infrastructure. With a diverse group of new and aging infrastructure, the challenge for each utility is finding balance between security, convenience, and cost. By utilizing current technology, those three components can be easily balanced while providing controlled access to remote sites. Technology has proven to be beneficial and efficient, thereby reducing unnecessary work and providing layers of protection to our drinking water. By having controlled access to each critical component of a utility, we are providing a peace of mind to the general public that our infrastructure is well protected. Controlled access to critical sites is also key for compliance within strict regulations in order to protect our water. Managers and decision makers from different sizes of utilities can utilize these options to protect their utility and be accountable with the public they serve. Technology should not scare them in doing so; it should benefit and ease them in their day to day operations.

CEU Comment

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May 4, 2016	4:00:00 PM	4:30:00 PM	Location	CEUs
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Track

WITC

Author

Robert Barrett

Presentation Title

SCADA Remote Access Techniques & Best Practices

Description

This presentation will provide a detailed description of the planning, hardware requirements, and configuration techniques for the implementation of a remote access solution to a SCADA system. The presentation will discuss best practices in security configuration, communications options, and light weight display design. Other topics will include access monitoring and intrusion prevention and detection. This presentation will give the attendee a comprehensive understanding of how set up a secure remote access solution to a SCADA system. The attendee will gain knowledge on best practices for access security, light weight screen display design, and alarm acknowledgement. Additional topics will include the discussion on the importance of maintaining and reviewing access logs and intrusion prevention software.

CEU Comment

Must attend full hour for CEUs

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May 4, 2016	4:30:00 PM	5:00:00 PM	Location	CEUs
			F	ID/OR/WA 0.05/0.05/0.05 Pending
Track	Author			
WITC	Andrew C. Degner			

Presentation Title

Building Redundancy Into Critical SCADA Communications Infrastructure

Description

Monitoring and control of remote sites via SCADA is crucial for daily operations at all water utilities. Loss of communications severs this vital link and leaves operations staff blind to system status. The inability to monitor and control dynamic field data can lead to serious implications regarding pressure, volume, water quality, equipment, and overall infrastructure as well as endangering public health. The importance of redundancy in communications to improve system resiliency is illustrated through a case study in which an unexpected source of interference severed the primary systems communication link. The presentation will provide an actual scenario in which a routine SCADA alarm call turned into a potential catastrophic communications failure. A catastrophic event was averted, however, due to redundant back-up for the existing radio system that had been installed at critical remote sites. The utility's primary radio and back-up cellular communications systems will be reviewed. The primary cause of the failure, SCADA and radio system trouble shooting, as well as final resolution will all be covered.

CEU Comment

Must attend full hour for CEUs

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			G	ID/OR/WA 0.1/0.1/0.1 Pending

Track

Competitions

Author

Doug Priest

Presentation Title

Gimmicks & Gadgets

Description

Gimmicks & Gadgets is the competition where ideas are shared in a way to help and improve operator's work in the field. Most innovations include the use of simple items that can be used every day in the field. This will be moderated with a structure such that each contestant will present their innovation and describe how it assists them, improving their work and make them more efficient and effective in completing their tasks for work on their respective systems. Entries in this competition have competed at a local level. Winners proceed to the national AWWA competition.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 2:45:00 PM 3:45:00 PM **Location** **CEUs**
G ID/OR/WA 0.1/0.1/0.1 Pending

Track

Competitions

Author

Doug Priest

Presentation Title

Top Ops

Description

Top Ops is the "college bowl" of the water industry. Teams of one, two or three operators from all PNWS subsections compete against each other in a fast-paced question-and-answer tournament. Teams answer a broad range of technical questions covering topics such as water quality, distribution, treatment, and regulations. Winners proceed to the national AWWA conference.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 7:30:00 AM 8:00:00 AM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Daphne Marcyan

Presentation Title

These Customers Won't Go Thirsty: Improving Water System Operations and Redundancy with a Replacement Water Pump Station and Seismic Upgrades

Description

Rockwood Water People's Utility District (District) provides drinking water services to over 62K people east of Portland, OR. Rockwood is supplied from the City of Portland from the Bull Run Watershed and from the District's groundwater wells. A key area of the District is served by a 1960's era Cleveland Pump Station and 3 MG Reservoir, but the water is pumped out of the reservoir since it is too low to serve to these customers, the pump station was nearing its end of service life, the reservoir required upgrades to meet current seismic resilience goals and the system did not provide adequate fire service and supply if water from the City's conduit was interrupted. MSA provided consulting services for the project to improve water service reliability including multiple pump station operation modes which are capable of supplying water to various pressure zones using the District's groundwater sources in the event the existing City conduit fails during a seismic event. This presentation will provide information regarding planning relative to evaluating supply to various pressure zones and supplying water following an emergency or disruption to normal water supplies. The presentation will describe the process for evaluating the existing reservoir relative to operational flexibility and structural upgrades to meet seismic resiliency goals and designing the pump station pump station to include multiple modes of operation, allowing for redundant water supply and flexibility to meet current and future demands over the life of the facilities and in the event of emergency water supply disruption.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	8:00:00 AM	8:30:00 AM	Location	CEUs
			C	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Distribution

Author

Michael Grimm

Presentation Title

Seismic Upgrade to a Reservoir Foundation - Managing the Project Hurdles to Completion

Description

West Slope WD with Murray, Smith & Associates teamed together to replace the existing reservoir foundation with a new foundation that would meet current seismic standards for a 9.0+ Cascadia Subduction Zone earthquake. This presentation will provide details on how the project was conceived, how the scope changed several years later, how the surrounding homeowners reacted to the project, and what obstacles were overcome during project construction. In addition to the abstract details, this presentation will describe the complex operational tasks of managing a distribution system with a key reservoir and a major transmission line within the distribution system out of service. The old transmission line needed to be removed from the 10-ft wide easement before the new transmission could be installed, and the pipe work needed to be completed before the reservoir could be drained and removed from service for construction of the a new foundation.

CEU Comment

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2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 8:45:00 AM 9:15:00 AM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Deborah Russell

Presentation Title

Seismic Resiliency: Upgrading a Treated Water Reservoir and Transmission Pipelines for the Big One

Description

In 2002, recognizing the need for major upgrades to the aging water system, the San Francisco Public Utilities Commission (SFPUC) initiated the Water System Improvements Program (WSIP) to meet level of services goals for seismic delivery, reliability, water quality and water supply following a major earthquake in the Bay Area. The WSIP was a \$4.8 billion multi-year program that included improvements to water treatment, transmission, and storage facilities. This presentation discusses two major projects implemented under WSIP: the 11 MG treated water reservoir constructed as part of the Harry Tracy Water Treatment Plant Long Term Improvements Project and the Peninsula Pipeline Seismic Upgrades Project, which addressed three large-diameter transmission pipelines that cross the Serra Fault. Challenges, lessons learned, and construction photographs are presented to provide insight into design and construction considerations for these complex projects, located in a high seismic hazard area. This presentation will discuss two projects implemented to meet level of service goals established for seismic delivery, reliability, water quality and water supply following a major earthquake in the San Francisco Bay Area. The projects include an 11 MG treated water reservoir (TWR) located within 1,000 feet of the San Andreas Fault and large diameter transmission pipelines that cross the Serra Fault. The design of the TWR included an external chlorine contact raceway for water treatment surrounding an internal treated water storage reservoir. Design of the pipelines included replacement of approximately 4,400 feet of 54- and 66-inch diameter steel pipe up to 1-1/4 inch thick, placed in specialized backfill materials. Attendees of this presentation will gain an understanding of the challenges and lessons learned during design and construction of these complex projects located in high seismic hazard areas, which could be applied to provide seismic resiliency for other water systems.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 9:15:00 AM 9:45:00 AM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Rachel Lanigan

Presentation Title

Planning For Seismic Resilience In Gresham's Water System

Description

Since 1999, the City of Gresham has been preparing its water system for withstanding a large seismic event. City staff members actively participate in regional development of seismic resiliency planning. The City recently contracted with Carollo Engineers, SEFT Consulting, McMillan Jacobs Associates, and Ballentyne Consulting to prepare a Seismic Resilience Plan that identifies system-wide improvements needed to strengthen all elements of the water system. The objective for this project was to determine the performance of the City's water system facilities for both the Cascadia Subduction Zone earthquake and the Maximum Considered earthquake. Reservoirs, pump stations, and critical pipes were evaluated for resiliency resulting in a prioritized list of recommended improvements. Additionally, the study includes recommendations for resilient design standards for standard pipe replacement projects. This presentation is relevant to utilities at risk of the Cascadia Subduction Zone earthquake that wish to begin planning seismic resilience into infrastructure.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 10:00:00 AM 11:00:00 AM **Location** **CEUs**
C ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
Distribution Brian Murphy

Presentation Title

SERPs Up! (Seismic Evaluation and Resiliency Planning) Are You Catching The Wave?

Description

Presentation will be a case study of a Seismic Evaluation and Resiliency Plan (SERP) prepared for a Pacific Northwest water system. The SERP is a system wide evaluation of a water system and its ability to function in the event of a specified seismic return event and the service disruptions that can be expected based on seismic event, facility condition and construction, and geotechnical conditions. The SERP uses combines construction data, condition assessment, seismic building codes, hydraulic models and geotechnical data to evaluate a water system's estimated functionality following a seismic event. The outcome of the SERP is a prioritized CIP style list of projects designed to be rolled into service and capacity CIP needs in order to maximize capital expenditures. The presentation addresses the need for a SERP, the approach, results, and how the SERP is intended to be used in conjunction with other planning documents. This presentation describes a tool for operators, engineers and managers to use in more efficient management of a water system and provides insight into what staff can expect following a seismic event most likely to impact their specific system. The SERP is a system wide evaluation that goes beyond simply evaluating the likelihood of a storage remaining intact for fire fighting purposes. The SERP addresses the needs of a system to provide service following an event rather than the repository for fire-fighting water.

CEU Comment

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May 5, 2016 1:30:00 PM 2:00:00 PM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Ryan Withers

Presentation Title

Using Pressure Data Loggers To Improve Hydraulic Model Accuracy And To Troubleshoot Distribution System Problems

Description

Hydraulic models are used to identify and plan water system improvements, and are routinely calibrated to ensure that the model closely reflects actual system pressures and flows under similar demand and operating conditions. Hydrant flow tests are typically performed for use in calibrating hydraulic models, but other than the data recorded at the static and flowing hydrants during the tests, the only real-time information available is typically at sources, reservoirs, or booster pump stations, which may be distant from the flow tests or may not provide sufficient information to accurately calibrate the hydraulic model. The use of pressure data loggers, installed at key locations prior to the hydrant flow tests, provide high resolution pressure information to verify the static and residual pressures at intermediate points in the system (between the water system facilities and the hydrant flow test locations). Information from the pressure data loggers is used to not only improve hydraulic model accuracy, but to also alert operators of in-line valves that are not properly oriented (valves that should be open that are actually closed, or vice versa), unknown connections to adjacent water systems or pressures zones, or pressure reducing valves with setpoints that differ from recorded values.

CEU Comment

Must attend full hour for CEUs

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Track			Author	
Distribution			David Stangel	

Presentation Title

Pocatello Master Planning – Balancing System Pressures and Fire Protection

Description

MSA completed a water facility plan (WFP) for the City of Pocatello, Idaho, their first in 20 years. Generally the City has adequate supply, storage and pumping capacity to provide for existing and future customers, however does face some challenges. Due to significant vertical relief, the system has 45 pressure zones resulting in a complex system with wide ranges in service pressure. The Idaho DEQ has required the City to come up with a plan to reduce pressures to less than 100 psi. The WFP was tasked with identifying required improvements while clearly defining a plan for pressure management. The challenge is that reducing pressures also reduces available fire flow. Therefore a balanced approach was taken for where pressure reduction could be implemented without seriously impairing fire flow or causing the need to replace many smaller diameter pipes immediately. This presentation will review some of the unique aspects of the project. Many systems are faced with pressure range and fire protection challenges. This presentation will provide a case study for how balancing these often competing needs was approached for a representative water system.

CEU Comment

Must attend full hour for CEUs

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May 5, 2016 2:45:00 PM 3:15:00 PM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Kimberly Gupta

Presentation Title

Portland Water Bureau's Water Quality Corrosion Study

Description

In 2014, the Portland Water Bureau embarked upon a large water quality corrosion study to evaluate the major mechanisms of lead release in Portland's system. Results of a year long sampling plan from the distribution system, customer homes, Tier One homes, and premise plumbing surrogate apparatus will be presented. NOTE: The research committee solicited an abstract from PWB on LCR issues, and during that presentation we plan to touch on the corrosion study but will not go into too much detail on the study if this abstract is selected. Lead and corrosion control is currently a major issue in the drinking water industry, and with revisions to the lead and copper rule expected next year, this will continue to be a major issue into the future. This presentation will outline major mechanisms of lead release and the methodology used to evaluate the major causes of lead corrosion in Portland's system.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 3:15:00 PM 3:45:00 PM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Mike Britch

Presentation Title

The Circuitous Path to Success – WWSP Design, Construction, and Coordination Challenges

Description

Successful implementation of a large water-supply program does not necessarily follow a straight path due to its complexity, the broad extent of the project area, and the long list of stakeholders involved. The Willamette Water Supply Program is achieving success in spite of many external factors that are helping drive its configuration. The \$1 billion water supply program includes over 30 miles of transmission pipelines, a new water treatment plant, pump stations, storage reservoirs and 10 large work packages with many phases that align the work with projects of stakeholders. These stakeholders include numerous cities, agencies, private developers, and regulating entities. In spite of it all, meaningful process is being achieved in a cost-effective and collaborative manner. This presentation will discuss the key design, construction, and coordination challenges experienced and how the program staff, design teams and the program leadership have managed to continue this progress. This presentation describes the kinds of challenging issues that managers and engineers must consider and address related to the successful implementation of large water infrastructure projects in developed and congested urban environments. In particular, it focuses on design, construction, and coordination aspects of these projects in this setting. This will help them have a broader understanding of the interrelated complexities of these projects and better equip them to achieve success with their projects.

CEU Comment

Must attend full hour for CEUs

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			C	ID/OR/WA 0.05/0.05/0.05 Pending
Track			Author	
Distribution			Jeffrey Wanlass	

Presentation Title

City of San Bruno Glenview Water Tank 3: Building a Critical Piece of Infrastructure Adjacent to the San Andreas Fault

Description

An existing 2 MG concrete tank, built in 1950, was replaced with a new concrete tank that meets current seismic design criteria. As a result of structural issues the existing tank had been operating at about at 50 percent of its total capacity creating a storage deficit within the system. In addition, the tank is located about 300 feet east of the active traces of the San Andreas Fault and sits between two faults north and east of the tank. Surface rupture features mapped along the San Andreas Fault in the site vicinity following the 1906 San Francisco Earthquake indicate distributed ground deformation has occurred at the tank site. The design team identified and evaluated possible mitigation measures to address the potential for significant ground movement during a seismic event; which included soil improvements, automatic seismic shutoff valves, flexible pipe connections, a secondary containment berm around the perimeter of the tank, and structural enhancements to the tank. While focused toward engineers and public officials, operators of systems in seismically active areas will learn of mitigation measures that may be applicable to their own systems.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 4:30:00 PM 5:00:00 PM **Location** **CEUs**
C ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Distribution Peter Boone

Presentation Title

TVWD/City of Tualatin's 10 MGD Portable Emergency Pump Station: Providing Supply Redundancy to a Single-Source Service Area and Adjacent City

Description

Tualatin Valley Water District and the City of Tualatin recently completed a joint venture project to plan, design, and procure a 10 MGD diesel-powered, trailer-mounted, portable pump station system. This pump system is designed to provide a redundant source of supply to a population of approximately 50,000 residents who currently rely on a single source of supply for drinking water. If this supply is compromised, the emergency pump system can be deployed to pump drinking water from TVWD's main distribution system which has other sources of supply. This presentation will demonstrate to operators how this pumping system is assembled and operated. It will provide relevant information to engineers about planning and design of water pumping systems. It also illustrates an example of water supply planning and how to provide redundancy to areas with single sources of supply.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 7:30:00 AM 8:00:00 AM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Nicholas Augustus

Presentation Title

Design And Construction Of A Backup Power System To Supply The New Ridgewood View Park Pump Station

Description

Tualatin Valley Water District (District) is in the process of upgrading and replacing aging infrastructure in order to maintain high quality water service to customers, and to ensure durability and seismic resiliency of its water system for the future. A major aspect of the seismic resiliency of this pump station is the backup power supply. The Ridgewood View Park Pump Station was designed and constructed to include special considerations for the backup power supply, and has included controls surrounding the backup power system to allow the pump station to function for an extended duration utilizing only the on-site fuel supply. This presentation will discuss the design and construction of the Ridgewood View Park Pump Station, focusing on the unique controls surrounding the backup power supply system. Engineers and operators will be able to use the information presented to apply similar ideas to the design and operation of their own pump station facilities. They will also learn about some “lessons learned” during the construction and implementation of the backup power supply system which will help avoid unnecessary spending.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	8:00:00 AM	8:30:00 AM	Location	CEUs
			D	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Engineering

Author

Tyler Clary

Presentation Title

Evaluating The Emergency Power Needs And Recent Emergency Power Installations At A Large Water Utility

Description

Having adequate emergency power is important for all water utilities. The City of Vancouver recently completed a comprehensive water system plan that included an evaluation of the emergency power needs of the water system. The approach of this review and analysis will be provided, including how emergency power relates to storage needs. The City has also completed several emergency power installations over the past 8 years and a review of these projects including problems and lessons learned will be provided. The ability to supply water under emergency conditions is important for all water utilities and having appropriate emergency power is important to ensuring reliable supply. Reliable supply of water for public health purposes in emergencies is essential. Presentation will also cover the City's approach to preventative maintenance of emergency generators.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 8:45:00 AM 9:15:00 AM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Carrie Pak

Presentation Title
Cascadia Lifelines Program

Description

The Cascadia Lifelines Program (CLiP) is a partnership between Oregon State University and infrastructure management agencies formed as one of the region's first efforts to begin preparation for a subduction zone earthquake. The Program's focus is on critical infrastructure, including the transportation, water, electricity and other infrastructure that will be most critical to recovery from an earthquake. Its goals are to help prepare for an earthquake, reduce loss of life, mitigate damage in the most cost-effective ways, and facilitate recovery after the event. This presentation will share information about the Program, introduce the CLiP members, and review recent progress. Using academically researched data, jurisdictions can make informed decisions to mitigate damage to their critical infrastructure in natural disasters, like an earthquake.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 9:15:00 AM 9:45:00 AM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Mike Britch

Presentation Title

What Does It Take for a Large Regional Water Supply System to Achieve Seismic Resiliency?

Description

The Pacific Northwest Region is due for a magnitude 9 subduction zone earthquake. Regional water transmission systems are essential to support human health, the local economy, and to recover quickly from such a disaster. The Willamette Water Supply Program is developing a new water system to supply a population of nearly 400,000 people on the west side of the Portland Metro Region. Achieving the desired level of resiliency requires new tools, techniques, and mitigation methods. Some of the elements the supply program is using to address this include a Seismic Resiliency Workgroup with subject matter experts; establishment of clear level of service goals; identification of seismic hazards; development of seismic design standards and solutions; and application of state of the art practices related to field investigations and design. This presentation will provide an overview of the topic, describe specific measures implemented so far, and identify key additional planned activities. This presentation describes important issues that managers, engineers, and operators should be aware of to help them be better prepared to address operations and supply of water in times of natural disasters like earthquakes and protecting the public health. This is a complex issue with many different kinds of things that will need to be addressed. By better understanding the different issues they will be able to determine some of the things they may need to work on with their infrastructure to achieve greater resiliency.

CEU Comment

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2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 10:00:00 AM 10:30:00 AM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Jason Chen

Presentation Title

A Collaborative Approach to Infrastructure Reliability

Description

Participants in this session will learn how a water wholesaler worked with regional retail partners to optimize where infrastructure investments are needed to improve regional reliability in earthquake and super storm events. The Santa Clara Valley Water District (SCVWD) recently undertook a study to identify investments or projects needed to improve reliability of its water supply, treatment, and distribution system in hazard events such as an earthquake and super storm. SCVWD took a regional and collaborative approach to the project. The result of the study is a suite of recommended improvement projects, both operational and capital, that provide a targeted approach to system reliability without over-investing in new or existing infrastructure. Participants in this session will learn how a water wholesaler worked with regional retail partners to optimize where infrastructure investments are needed to improve regional reliability in earthquake and super storm events. Participants will learn about the benefits of regional coordination, the benefits of taking the time to learn and understand infrastructure so it can be utilized at the regional level, and balancing investments with need for increased reliability.

CEU Comment

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2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 10:30:00 AM 11:00:00 AM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Marshall Meyer

Presentation Title

When the Drought Takes Your Supply Out: Quickly Designing and Constructing Pump Stations with Existing Equipment to Address a Water Supply Shortage

Description

When Clallam County PUD 1's surface water source was no longer available due to low stream flows and the 2015 drought, District and MSA staff had to quickly develop an alternative water supply strategy for portions of the water system. District and MSA staff worked to design temporary pump stations using existing spare pumps and other new materials to implement a new water supply strategy. The temporary pump stations were used during the emergency water shortage during the summer of 2015 and can be used again in other emergencies. The presentation will cover the mission critical elements of pump station design and a real world approach to address a water supply shortage that was designed and constructed within a matter of weeks. This presentation shows the critical components considered to design pump stations and address a water supply shortage. Pump station startup, troubleshooting and operations will be discussed including manual adjustments, startup and monitoring. This project is an example of water system staff responding to a real world water supply issue and can provide insight into temporary solutions that may help others in a similar situation.

CEU Comment

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2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 1:30:00 PM 2:00:00 PM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering Alena Thurman

Presentation Title

Bridging the Gap between Master Planning and Design of a 5 MG Reservoir to Better Serve Customers

Description

The Highline Water District (HWD) must relocate a 5 MG tank that interferes with Sound Transit's future Federal Way link extension. Fortunately, this project follows a water system plan (WSP) that illuminated opportunities to improve water service through this project. Analysis of the system confirmed the need for the tank for emergency storage and to maintain the system's HGL. However, a small elevated tank must be demolished to accommodate the new 5 MG tank. The question HWD faces is: should they rebuild the elevated tank? The WSP identified high elevation customers near the tank site that experience low pressures during peak demands. The integrated WSP/design team was able to size the new tanks using WSP tools and criteria, and confirm the hydraulic feasibility of each option with HWD's hydraulic model. On top of that, the team put forward design options that maintain HWD's storage operations and leverage the opportunity to improve service to low-pressure adjacent customers. This presentation demonstrates the importance of integrating planning tools and team members into the design process for water system facilities. Addressing water service deficiencies identified in the planning process in the design of new facilities improves water quality, water supply reliability, and public health.

CEU Comment

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2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	2:00:00 PM	2:30:00 PM	Location	CEUs
			D	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Engineering	Jocelyne Gray

Presentation Title

Union Regional Water System - Consolidation of Six Small Water Systems

Description

Discussion of the preliminary design to consolidate six small water systems into a single regional water system. Discussion will include Washington State's consolidation program and grant funding. Preliminary design evaluates pressure zones, infrastructure, funding, environmental, and public relations issues. The consolidated system will include 11 sources, 10 storage tanks, 21 pressure zones, and several control valves requiring construction of new mains, sources, and tanks. Consolidating six water systems into a single system will also require integrating individual system operations so that they operate as a single unit, with all parts working together. Consolidation must evaluate current O&M practices of each system, and revise and design the new operations and maintenance of the system as a whole. It will have 21 pressure zones, 11 sources, and several storage tanks so operations, coliform monitoring, and chlorination system.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 2:45:00 PM 3:15:00 PM **Location** **CEUs**
D ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Engineering David Kraska

Presentation Title

Overcoming Inertia: Advancing from Concepts And Planning To Delivery Of Infrastructure.

Description

Major public works projects have a propensity to languish in the planning phase. Using the Willamette Water Supply Program (WWSP) as a case study, we will present a strategy for advancing a large water supply project from concept into delivery. The WWSP is a \$1.2 billion drinking water infrastructure program that will provide a new seismically resilient supply of potable water to serve over 300,000 residents and some of Oregon's largest employers for the next 100 years. Although the WWSP partners had independently planned for water supply needs for many years, it is the coordinated planning between the partners that overcame the inertia to facilitate its delivery. A few critical elements are propelling the WWSP from the planning into execution: a clear statement of the project's purpose and need; commitment and a formalized agreement by the partners' governing bodies; agreed thresholds for affordability and cash flow; and establishing a dedicated, interdisciplinary program team. The intended audience for this presentation includes utility administrators and directors that are charged with completing major infrastructure projects. For them, our presentation will provide strategies the audience may find useful as they endeavor to complete large capital improvement programs.

CEU Comment

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2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	3:15:00 PM	3:45:00 PM	Location	CEUs
			D	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Engineering

Author

Tim Tekippe

Presentation Title

Splitting The Watermelon – WWSP Packages \$1.0 B In Infrastructure

Description

The Willamette Water Supply Program (WWSP), a partnership led by Tualatin Valley Water District and City of Hillsboro in Washington County, Oregon, is developing a new water system from an additional water source, the mid-Willamette River in Wilsonville. The new system will be designed for reliability and resiliency, and it will include over 30 miles of transmission pipelines, a new water treatment plant, pump stations and storage reservoirs. As preliminary design of the system was concluding, WWSP was faced with a significant challenge - How should the components of so much infrastructure be divided and packaged for design and construction? Several criteria were considered to meet key objectives of encouraging local participation while defining manageable and cost-effective project size and scope. The criteria and process for packaging the system into individual projects will be described, and the design and construction progress of the earliest packages will be summarized. The presentation is intended for engineers and owners who are considering planning and designing projects for new water sources.

CEU Comment

Must attend full hour for CEUs

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May 5, 2016	4:00:00 PM	4:30:00 PM	Location	CEUs
			D	ID/OR/WA 0.05/0.05/0.05 Pending
Track			Author	
Engineering			Joelle Bennett	

Presentation Title

Construction Partnering Between Agencies – Who Takes the Lead?

Description

The regional Willamette Water Supply System (WWSS) will provide additional resiliency and redundancy to the water supplies of the City of Hillsboro and the Tualatin Valley Water District in Washington County, Oregon and other potential project partners. The WWSS will include a water treatment plant, terminal reservoir storage, and more than 30 miles of pipeline. This presentation will review the different types of agency partners the WWSS Program has collaborated with to-date and how each partner affects the processes of design, contractor procurement, and construction. The benefits of partnering with other agencies can be significant; unique challenges can arise from each arrangement. Information is relevant to engineers and construction staff looking to coordinate or partner with another agency while retaining their own agency's control on the construction process

CEU Comment

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May 5, 2016	4:30:00 PM	5:00:00 PM	Location	CEUs
			D	ID/OR/WA 0.05/0.05/0.05 Pending
Track			Author	
Engineering			Lindsay Smith	

Presentation Title

Davis-Woodland Water Supply Project: Quest for Reliability, Innovation, and Affordability Becomes a Reality

Description

The Davis Woodland Water Supply Project is one of the largest and most complex water supply projects to be contracted via alternative delivery in California. In addition, it touches virtually every aspect of water — including water resource planning and program implementation for surface water, groundwater, wastewater, aquifer storage and recovery, water right acquisition – through both purchase and application, and much more. The Cities of Woodland and Davis took a collaborative approach to meeting their growing water supply needs. The project was a decade long, \$279M effort that included a new intake, 14 miles of pipelines and a new 30 mgd Water Treatment Plant. This presentation will focus on the design-build-operate procurement approach, regional planning and collaboration, development of funding/cost-sharing, and establishing support for the project with state and federal political leaders and funding agencies, and with local supervisors and council persons. The cities of Davis and Woodland were experiencing degrading groundwater quality and quantity as well as more stringent wastewater discharge regulations. After evaluating many alternatives, it was determined that adding a supplemental surface water supply was the most cost-effective solution that met both of the cities' goals. This presentation will cover the conjunctive use of groundwater and surface water supplies, the aquifer storage and recovery program that was implemented as part of this project, and the design-build-operate project delivery method used to procure this project.

CEU Comment

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2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 7:30:00 AM 8:30:00 AM **Location** **CEUs**
F ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
ORWARN Jill Hoyenga

Presentation Title

Emergency Water Supply Guidebook For Commercial, Industrial & Institutional Customers

Description

The Eugene-Springfield Natural Hazard Mitigation Plan Sub-committee sponsored a project team that authored a guidebook to help municipal water customers to prepare for water emergencies. The publication is a practical step-by-step guide to analyze emergency water demand, assess storage, disinfection and delivery options, provide for shelter-in-place sanitation and maintaining readiness once preparedness investments are in place. State of Oregon recommendations from Chapter 8 of the Oregon Resilience Plan published in February 2013 have advised water and wastewater utilities to begin aggressive public information efforts to re-set public expectations for a realistic response time [to catastrophic failure due to earthquake] and that there is clear value in members of the public having robust emergency supplies. State of Washington Recommendation 5 from the Resilient Washington Report: Provide education, tools, and training to help businesses develop continuity plans. Oregon and Washington utilities are required by their respective states' resilience plans to help customers prepare for catastrophic events. Utility managers and operators planning for disaster recovery need to make an accurate estimate of what's required in the immediate aftermath of catastrophic events. Using EPA's community and utilities water resilience program as a guide, they work with their customers to help them assess and prepare them for their own needs. This in turn allows managers and operators to more accurately forecast the reduction in the demands made upon the utility and the impacts to public health following failure of the municipal water and wastewater systems. If customers are self-sufficient for even a short period of time, utilities can turn their focus to system-wide recovery and more quickly restore service in support of public health and safety (hospitals, fire protection).

CEU Comment

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May 5, 2016 8:45:00 AM 9:15:00 AM **Location** **CEUs**
F ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
ORWARN Arnab Bhowmick

Presentation Title

Resilient Asset Management For Emergency Management

Description

Asset management systems are not only important for asset maintenance but also during emergency and crisis. It is important to build and store important data within it that helps the operations to become resilient and respond to emergency management in crucial times. Also, the system should have certain features and functions to allow resiliency. We will discuss important data items, features and functions that will help local govt. to become resilient by using appropriate asset management systems. Every O&M, PW Ops, department heads and managers should benefit from this presentation to become resilient, and choose appropriate asset management system that will help them respond with efficiency and dexterity in times of crisis. Just having an asset management system is not enough now. It should help Ops during emergency management and preserve public safety and health through repair and maintenance of infrastructure properly.

CEU Comment

Must attend full hour for CEUs

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			F	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
ORWARN	Chris McMeen

Presentation Title

Maintaining Service Through Resiliency And Emergency Response

Description

The Central Puget Sound region is susceptible to earthquakes, volcanoes, wildfires, severe storms and droughts which can disrupt the delivery of safe, reliable water service. To plan for these threats, the Central Puget Sound Water Supply Forum, which includes Seattle Public Utilities, Tacoma Water, Everett Public Works and Cascade Water Alliance came together -- without crises or mandates -- to determine how utilities could continue providing water service during a crisis. This will help utilities take proactive steps evaluating and enhancing water supply system resiliency across and between individual service areas and identify what utilities can do to mitigate these risks. Teams of technical staffs from each utility analyzed the risk scenarios and determined consequences and risks. Initial conclusions and recommendations have been completed.

CEU Comment

Must attend full hour for CEUs

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May 5, 2016	10:00:00 AM	11:00:00 AM	Location	CEUs
			F	ID/OR/WA 0.1/0.1/0.1 Pending

Track	Author
ORWARN	Jason Canady

Presentation Title

Providing Emergency Services - Grants Pass' Approach to Drinking Water Supply

Description

This presentation focuses on the City of Grants Pass' approach to providing potable water in the event of a catastrophic failure of its water filtration plant. The program will focus on the evaluation and selection of various portable filtration equipment, design and construction of an emergency treatment supply and development of an alternate supply for increased resiliency. This program will illustrate to operators, maintenance and water managers an approach to selecting alternate supply technology to be able to provide minimal water services during an extended emergency. Treatment technologies, evaluation criteria and relevant drinking water system rules will be discussed. Operators will gain a better understanding of the importance of emergency operations plans, alternate supplies and resiliency.

CEU Comment

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May 5, 2016 7:30:00 AM 8:00:00 AM **Location** **CEUs**
G ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Utility Management Catherine Howells

Presentation Title
Workforce development and university students

Description
This presentation will discuss how to reach out to universities to spur interest in water utility careers and create a motivated, diverse and educated workforce for the next generation. Understanding the next generation workforce and developing diversity is a challenge for all utilities. This presentation will help managers and administrators learn to inspire university students for careers in water.

CEU Comment
Must attend full hour for CEUs

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May 5, 2016	8:00:00 AM	8:30:00 AM	Location	CEUs
			G	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Utility Management	Marlys Mock

Presentation Title

Willamette Water Supply Program's Proactive Communication Approach to Right-of-Entry

Description

This presentation includes an overview of the efforts by the Willamette Water Supply Program to secure right-of-entry from more than 450 properties along the 30-mile pipeline route. The Program is using a multi-phased approach to communicate personally with property owners for which access, and potentially right-of-way, easements, and acquisitions, will be needed. The effort is well received by property owners, promoting long-term positive relationships and reducing public opposition and project delays. Acquiring easements and/or property to build water infrastructure can result in strong public opposition. Impacted property owners can be fearful of government and worried about long-term impacts to their lives. Because acquisitions usually occur at the beginning of projects, the opposition spawned during this time could have long lasting consequences. By making a committed effort to building personal relationships with impacted property owners at the start of the project, awareness and support for the Program increases. This approach facilitates neighbors having a more positive association with project team members, and helps increase acceptance of construction impacts. The time and effort to personally visit, call or mail every property owner pays off with a reduced risk of public conflict that can result in costly delays.

CEU Comment

Must attend full hour for CEUs

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May 5, 2016 8:45:00 AM 9:15:00 AM **Location** **CEUs**
G ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Utility Management Kim Ervin

Presentation Title
The Path to Potable Reuse

Description

Reclaimed and reused water in the Northwest has historically been driven by the desire to be green and increasingly stringent wastewater discharge limits. Implementation has been focused on irrigation and industrial uses. As water-starved areas of the country make potable reuse a reality, what is the future for potable reuse in the Northwest? This presentation will consider the progress of potable reuse around the country and specific drivers and issues such as a drought-resistant supply, comparative costs, treatment and monitoring, public acceptance, environmental buffers/aquifer recharge and water quality blending. This topic is applicable to managers and engineers as it will consider developing requirements, regulations, and treatment related to reuse of municipal water sources for drinking water applications.

CEU Comment

Must attend full hour for CEUs

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May 5, 2016 9:15:00 AM 9:45:00 AM **Location** **CEUs**
G ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Utility Management Lynn Stephens

Presentation Title
Blueprint for One Water

Description

This presentation will summarize the blueprint for One Water that was developed as a part of Water Research Foundation project 4660 – Implementing One Water. This presentation will discuss survey results from reaching out to more than 800 water professionals, one-on-one interviews, and the results from a 2-day workshop with 30 water professionals from across the country. The blueprint includes: Critical steps in developing a One Water framework; Case study examples of how utilities have taken innovative approaches to implementing an integrated planning approach; Methods for overcoming potential barriers and obstacles; Key outcomes and milestones for each critical step. This presentation will summarize best practices for water planning and how to incorporate uncertainty.

CEU Comment

Must attend full hour for CEUs

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May 5, 2016 10:00:00 AM 10:30:00 AM **Location** **CEUs**
G ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Utility Management Matthew Huang

Presentation Title

One Water Los Angeles 2040 Plan: Managing All Water as One Water Using a Water Balance Model

Description

The City of Los Angeles is currently going through their One Water LA 2040 Plan process, with an intention of updating the integrated water plan for the City. This plan considers and integrates all water sources for the City: groundwater, surface water, sewer collection, recycled water, stormwater, and environmental flows. Although individual City Departments collect and maintain data for individual water flows, this data was never combined into a single model. The data included wastewater flows from all treatment plants, potable water demands, water conservation estimates, stormwater modeling, and utilization of the City's potable water distribution model and wastewater collection system models to obtain spatial allocations of demands and flows. The water balance tool was developed using Blue Plan-It™ (BPI), a non-proprietary simulation and optimization tool. The presentation will include a brief background of the One Water LA 2040 Plan and explain how the model was utilized to define the strategic One Water vision and key recommendations. The presentation will discuss how integrated regional planning will benefit water agencies in the Pacific Northwest. It will also bring to the Northwest some ideas on how individuals in other parts of the country view the water resources planning process, and give some lessons learned that will be applicable to our region.

CEU Comment

Must attend full hour for CEUs

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May 5, 2016 10:30:00 AM 11:00:00 AM **Location** **CEUs**
G ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Utility Management Jenn Minton

Presentation Title

Alternatively Delivering the Best Value

Description

The delivery method selected for the Lebanon WTP Project was traditional design/bid/build in order to allow schedule and scope flexibility and solicit competitive bids for lowest cost to the City. Historical cost data was used for project cost estimates, however, the estimates proved to be inaccurate for building trades and labor. Cost estimates were accurate for the utilities, intake, and raw water pump station, and treatment processes, but were not for the WTP building and skilled trade work. The lowest bid for the project was nearly 40% higher than the estimate and exceeded the City's funding limit. The City was faced with a choice of incorporating design changes and rebidding the project or choosing an alternate delivery method. A two phase alternate delivery method was chosen to eliminate the uncertainty of bid prices. The method provided contractor-led value engineering based on true construction pricing, limited schedule delay, and the City with a guaranteed maximum price. Lessoned learned will be discussed as well as the decision making process to move the project forward under an alternate delivery method. Given the uncertainty in the bidding climate, utilities may be faced with a similar decision on whether to deliver a project in a traditional or alternate delivery method. This presentation will be beneficial to utilities and engineers designing projects to be bid within the next few years and into the future.

CEU Comment

Must attend full hour for CEUs

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May 5, 2016 7:30:00 AM 8:00:00 AM **Location** **CEUs**
B ID/OR/WA 0.05/0.05/0.05 Pending

Track

Wastewater

Author

Peter Carter

Presentation Title

Oxidation Ditch Management

Description

Oxidation ditch WWTPs are common for utilities in the region. This presentation will use the Vashon Treatment Plant (VTP) as the case study. VTP is a 0.26 MGD AWWF oxidation ditch plant. It was started up in 2006 and replaced an older oxidation ditch plant that was having trouble consistently meeting its operating permit limits. This presentation will talk about why the old plant was having difficulties, how the new plant operates and oxidation ditch process control in general. The new plant consistently produces an effluent with BOD , TSS and total nitrogen values less than 10 mg/L. This presentation will give operators insights into why the previous plant failed and how the new facility was designed and is operated to consistently meet permit requirements. Specific emphasis will be on the process control. Information provided is directly related to the treatment process and resulting water quality and therefore helps the operator protect public health as well as marine life in the receiving waters. The information is applicable to all oxidation ditch WWTPs and can be applied at the attendees facility.

CEU Comment

Must attend full hour for CEUs

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Track	Author
Wastewater	Chris Chesson

Presentation Title

Biosolids Management for Lagoons

Description

This presentation will cover how to maximize solids storage in lagoons. Other topics covered will include removal and processing lagoon biosolids to assure regulatory requirements are met and regulations regarding the subsequent land application of the lagoon biosolids. Proper management of solids in lagoon WWTPs prolongs the life of the facility, minimizes odors and maximizes treatment and resulting water quality. Understanding the factors that affect lagoon biosolids while they are in the lagoon and when and how to process and dispose these biosolids as they are removed are essential skills for the operator of a lagoon WWTP.

CEU Comment

Must attend full hour for CEUs

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Track

Wastewater

Author

Butch Perry

Presentation Title

How to Read PID Diagrams

Description

In order to understand a PID diagram operators should know how to find what each of the symbols, identification letters, and line types on a drawing signify so that the drawing can be understood and interpreted properly. The objective of this presentation is for the attendee to understand how to read a PID and to understand the story it is telling. Discussion will include how King County uses PID drawings during project development, for project specifications, development of SOP's and use of as-built drawings for maintenance and operator training. Attendees will be given drawing examples to follow along with the presenter and learn by doing. It is critical for operators to understand how the processes at a treatment facility are controlled. Understanding the PIDs allows the operator to gain that understanding to provide accurate and efficient control to optimize the process and the finish product. PIDs are common to all treatment processes, water and wastewater. Chemical feed, mixing, pump flow control, tank level control are just a few examples of the multiple processes an operator needs to manage. Understanding the PIDs also allows the operator to be an integral part of the design of treatment facilities.

CEU Comment

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May 5, 2016 10:00:00 AM 11:00:00 AM **Location** **CEUs**
B ID/OR/WA 0.1/0.1/0.1 Pending

Track

Wastewater

Author

Bud Titus

Presentation Title

Network Fundamentals

Description

Course will involve networking basics including purpose of networks, legacy network components, network media, and categorization of networks including ring, bus, star, hub & spoke, partial, and fully meshed network topologies. An overview of classification of network architecture will be presented as applied to the water and wastewater industry. World is becoming more and more digital from the analog, information presented to the operator from this digital world can either help or hinder decisions the operator needs to make real time, information can either create efficiencies or chaos depending on how one manages this information. Information utilized properly ultimately benefits water quality and public health. The presentation will give the attendee a basic understanding of how networks operate which will help them better use information available and define a network that fits their operation.

CEU Comment

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			B	ID/OR/WA 0.1/0.1/0.1 Pending

Track

Wastewater

Author

Jeff Marrs

Presentation Title

Ballasted Sedimentation Process for Water & Wastewater Treatment

Description

Ballasted sedimentation is a treatment process that is rapidly gaining popularity for water pretreatment and wastewater treatment (mostly CSO, SSO or storm water). Basic process of a ballasted sedimentation system will be discussed along with variations and details of systems as they are applied to water and wastewater plants. Case studies will be presented for both W & WW treatment for existing facilities and those under design. Lessons learned from plant operation will be given. Ballasted sedimentation is a process common to both water & wastewater treatment plants. It is highly effective and produces a consistent water quality. Understanding the process and applications/limitations allows the operator, engineer and manager to better direct selection and design of new treatment processes or the replacement or upgrade of existing facilities.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 2:45:00 PM 3:45:00 PM **Location** **CEUs**
B ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
Wastewater Ed Griffenberg

Presentation Title

Operator involvement in Capital Facility Planning and Design

Description

This presentation will discuss how to involve operators in the design of new capital facilities (pump stations, treatment, storage, etc.). The focus will be on how the knowledge and experience of operators can be optimally used in the design process through life-cycle cost, asset management, O&M requirements, etc. Having a voice in how capital facilities are designed and constructed greatly affects their operation and efficiency. Lessons learned by local operators can be transferred to engineers and designers that may not fully understand how local conditions affect processes. Getting operators involved early minimizes revisions once the facility is operational and maximizes the control operators have over the day-to-day operations.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	4:00:00 PM	4:30:00 PM	Location	CEUs
			B	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Wastewater	Chad Clay

Presentation Title

Remote Control/Monitoring of Treatment and Pumping Facilities

Description

Remote control monitoring allows for automated systems to operate with a minimum of operator interaction. All of King County's pump and regulator stations are remote monitored facilities (RMF) and two of five wastewater treatment plants, including water reuse facilities, are staffed only during regular working hours with after hour oversight transferred to a facility with a 24/7 staffed operations center. Alarms monitored by SCADA are quickly acknowledged and reacted to as if an operator was on site. If needed the operations center can send an operator out to check on alarms or conditions that cannot be resolved remotely. The presentation will show how primary and backup data is transmitted from the RMF to an active control room for monitoring. Also how data is captured and viewed, how to prioritize alarms and what SOP's there are for acknowledging and responding to alarms. Required staffing will be covered to maintain dependability and reliability for O&M of the RMF. Budgetary constraints often require limited staffing of water or wastewater treatment facilities and advances in technology allow this to take place while assuring the quality of the process and product. Operators, engineers and managers who have been asked to consider remote operation will be given insight to the limits of the technologies and what to ask for in the design of these monitoring and control systems to avoid problems during startup and operation. Approaching this question with a better understanding of the expectations and limitations will allow operators better control of the final system, maintain water quality and protect public health.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	4:30:00 PM	5:00:00 PM	Location	CEUs
			B	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Wastewater	Kolby Hoagland

Presentation Title

Jump Start Plant Maintenance Efficiency with Appropriate Equipment Disconnects

Description

O&M staff need to quickly and safely disconnect, repair, and reconnect electrical equipment to minimize downtime and increase reliability. By installing horsepower rated disconnect plugs and receptacles; the need for an electrician to safely disconnect and reconnect some equipment is eliminated. KCWTD & City of Bellevue have employed horsepower rated disconnects with great success for over a decade for water and wastewater facilities. Reduced maintenance time and improved worker safety has resulted. This presentation will offer a narrative of where the installation of disconnects have been found to be beneficial. Attendees to the presentation will gain practical insight into how disconnects are best employed. The presentation will also wade through NEC and OSHA regulations that surround horsepower rated connections. the goal is a solid understanding the regulations and return to their districts with a proven strategy to maximize plant maintenance work flow efficiency and safety. Use of electrical disconnect plugs and receptacles greatly reduces downtime for equipment repair and replacement. Faster turnaround for scheduled maintenance and emergency repairs improves reliability of the individual equipment and process as well as the overall system. Knowledge of the proper use of these disconnects is needed to efficiently determine what equipment and processes are best suited for their use. Electrical and worker safety codes apply to the use of disconnects and must be understood to properly apply the technology.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 7:30:00 AM 8:00:00 AM **Location** **CEUs**
A ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Water Conservation, Water R Jeanne Finger

Presentation Title

From DSL to IWA/AWWA Best Practice Water Loss Audit in Spokane

Description

The City of Spokane, WA is blessed with an abundant supply of drinking water in the Spokane Valley – Rathdrum Prairie Aquifer. Despite ample water rights for future growth, conservation has become a high priority. As a result of legislation in the late 2000's, the City began analyzing its water use efficiency and noted it was operating with considerable losses. Since the Distribution System Leakage (DSL), as defined per WAC 246-290-820 (1)(b)(i), exceeds the regulatory standard of 10% or less for the last 3-yr average, the City retained Black & Veatch to help with setting up a water audit using the IWA/AWWA Method and Free Water Audit Software as a first step towards developing a loss control action plan. The water audit revealed what staff already knew or suspected. This presentation provides an overview of the project, what the City hopes to get out of it, and other insights that may be useful for other utilities to know before starting or completing a water audit. This presentation highlights the AWWA standard water audit method and the associated Free Water Audit Software as a best practices tool for analysis and management of water systems. Water utilities can unknowingly operate with inefficiencies in terms of water and revenue losses. The water auditing process is an effective way for utilities to quantify consumption and losses occurring in distribution system and management processes. Once the type and magnitude of losses is understood and controlled, operators can use this information to improve the water supply.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	8:00:00 AM	8:30:00 AM	Location	CEUs
			A	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Water Conservation, Water R	Rachel Lanigan

Presentation Title

Outdoor Water Conservation as a Source of Supply: Survey of Northwest Communities & Vancouver Case Study

Description

As supplies and infrastructure in the PNW are driven by peak summer demands, water conservation efforts focused on irrigation may be a cost-effective alternative to developing new supply sources. This study reviews historical demand data for several northwest communities, identifying indoor and outdoor water use trends over the last decade, and attempts to identify demand elasticity with respect to conservation measures, economics, and weather. A City of Vancouver preliminary study investigates outdoor conservation potential comparing efficient and current residential irrigation demands. In turn, the reduced water demands resulting from an aggressive, outdoor use reduction program may defer planned, new supply development. The study provides City water management a practical tool with potential lost demand revenues and capital project savings. The presentation will provide region-wide data on water use and potential water conservation that could influence water supply management decisions.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 8:45:00 AM 9:15:00 AM **Location** **CEUs**
A ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Water Conservation, Water R Patrick Griffiths

Presentation Title

Bend's Strategies for Making Conservation a Reliable Part of It's Long Term Water Supply Portfolio

Description

The presentation will describe how the City of Bend Oregon's Utility Department is creating discreet processes, policies and operating procedures to make water conservation, demand management and other related water efficiency strategies a foundational part of its long term water supply portfolio. Included in the presentation will be a discussion of its innovative financial policies (rates, reserves and other); data tools, from creation of distinct customer classes to investment and use of AMI; customer engagement, key partners and outreach strategies; use of regulatory tools and related regulatory requirements - such as the Oregon water management and conservation plan, enforcement, water waste ordinance; and other tools such as automated leak detection and use of the new AWWA water audit software, to the successful compliance with the new AWWA G-480 Water Conservation Program standard.. Operators and other professionals will benefit by participating in a presentation that outlines how operational involvement in key processes, programs and policies around efficient water management - are key to the management of water as a whole. Participants will see clear examples of how water operators are key participants in the data collection, planning and ultimately implementation of successful water efficiency practices, such as measurement, water audits, leak detection, water use reporting and more. Participants will see clear examples of how multiple programs all live under the broader tent of water supply management and relate to many other areas of a utility, from rates to underlying financial policies. In addition, those seeking CEU's will clearly see how these programs connect across multiple divisions and even departments within a fast growing but medium sized City (estimated population of 87,000), for a water utility with ~25, 000 water connections.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 9:15:00 AM 9:45:00 AM **Location** **CEUs**
A ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Water Conservation, Water R Alena Thurman

Presentation Title

M50, Water Resources Planning : Spotlight on Sustainability

Description

AWWA Manual M50 (third edition , 2016), Water Resources Planning, was prepared by AWWA's Water Resources Planning and Management Committee and more than 50 volunteer authors and reviewers. Its purpose is to help water resource planners who are facing the challenge of accommodating a growing demand for water, while addressing competing uses and complying with the myriad of regulations that govern the development and use of new water supplies. This manual is a guide that will allow the utility to develop and implement a comprehensive planning document that responds to technical and institutional questions that must be addressed before deciding how to develop new water supplies. The overarching principle of M50 Manual is sustainability. Hundreds of millions of people around the world already face critical water shortages. Sustainability in water resource planning means using reliable supply sources to meet water consumption needs today and in the future, while maintaining water quality. Manual M50 is a tool for utilities and water resource planners to help them secure sustainable water resources for their water system.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 10:00:00 AM 11:00:00 AM **Location** **CEUs**
A ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
Water Conservation, Water R Edward Cebron

Presentation Title

Making the Case for Cost-Effective Conservation Programs

Description

Cascade Water Alliance is responsible for conservation services to its members. Through its system planning process, a role for conservation was identified that could then be quantified in terms of costs, impacts on demands, and financial benefits. The business case approach used by Cascade can be adapted for any organization, and simple “rules of thumb” could be developed to evaluate cost-benefit. The presentation will walk through the conservation planning and analysis processes undertaken by Cascade, discuss the financial analysis used to evaluate, qualify and prioritize projects, and outline methods for other agencies to use simplified approaches to document net cost or benefit of programs. Provides framework for evaluating public investment in conservation and determining cost-effectiveness of conservation programs and projects. Provides analytical approaches to improve business case analysis for utility decision-making.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 1:30:00 PM 2:00:00 PM **Location** **CEUs**
A ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Water Conservation\Water In Edward Cebron

Presentation Title

Conservation Targeted At Low Income Customers: Evaluating A Pilot Program

Description

Cascade Water Alliance manages a conservation program to a service area of 350,000 people on behalf of its member agencies. In a search for cost-effective investments that could also provide assistance to low income customers, a pilot program was developed to target conservation for qualifying households through a member rate assistance program. This paper discusses the challenges and findings of the 2-year program, including methods of outreach, participation, securing vendors, and conducting audits. Conservation yields will be presented and cost-effectiveness evaluated. Finally, lessons learned and ideas for how a larger scale program might be implemented will be explored. Provides an analytical framework for evaluating new conservation programs and projects. Identifies and evaluates process challenges for a conservation outreach program. Provides specific guidance on enhancing low income assistance while enhancing system efficiency.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 2:00:00 PM 2:30:00 PM **Location** **CEUs**
A ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Water Conservation\Water In Rachel Lanigan

Presentation Title

GIS: A Tool For Water Conservation Planning & Tracking

Description

The Eugene Water and Electric Board (EWEB) is a water conservation leader in the northwest and has been implementing water conservation programs for nearly twenty-five years resulting in consistently improved water use efficiency. Identifying the remaining water conservation potential is necessary to understand what water end users can be targeted by continued existing and new conservation measures. Carollo Engineer's (Carollo) assisted EWEB to estimate indoor and outdoor water use for various customer types, identify efficient water use benchmarks, and evaluate indoor and outdoor water conservation potential. Additionally, a GIS tool was developed that spatially integrates current water use and conservative potential in GIS format. The main goals of the Conservation GIS Tool (GIS Tool) included spatially identifying conservation potential, estimating water uses, integration with master planning, water use tracking, and ongoing tracking of the conservation program. The presentation is relevant to water managers as water conservation may influence water supply planning and can delay expensive infrastructure improvements.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 2:45:00 PM 3:45:00 PM **Location** **CEUs**
A ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
Water Conservation\Water In Brett Foreman

Presentation Title

New Automated Leak Detection and Resolution Solutions for non-AMI and AMI environments

Description

Advances in smart water meter technology are bringing a revolution in data collection capabilities along with new ways to dynamically detect leaks and gain other critical insights into customer water consumption patterns. Fortunately a new generation of data analytics technologies is making it possible to create sophisticated and automated self-resolution workflows personalized to a household's water use; thereby allowing utilities to avoid costly customer service measures. The first part of the presentation will explore the information streams, modeling methodologies and data presentation approaches that have proven successful for AMI and non-AMI suppliers in detecting leaks. The second section will discuss how these tools can aid in more effective customer communications and improved utility operational efficiency. We'll share best practices on which types of messages resonate with residents so that leaks are quickly resolved on a self-service basis. This presentation will benefit water utility managers who are responsible for managing customer service calls, household visits, and bill adjustments for leaks as well as staff responsible for demand management, operational efficiency and public information programs. We'll review the best forms of communications to improve customer satisfaction through quickly resolving leaks through new online leak resolution workflows. Lastly, we'll discuss how utilities can use these capabilities in the run-up and transition to advanced metering infrastructure deployments.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	4:00:00 PM	5:00:00 PM	Location	CEUs
			A	ID/OR/WA 0.1/0.1/0.1 Pending

Track	Author
Water Conservation\Water In	Jesse Engum

Presentation Title

Automated Metering Infrastructure: Five Years In

Description

The City of Gresham began installing AMI meters in 2009. This session will provide an overview of our experiences and the primary ways we use AMI tools. We can talk about use and updates of hardware, software, and the kind of analytics we perform with the resulting data. We can discuss how AMI data is folded into discussions around utility policy, rate making, and other financial planning. An AMI system produces a lot of data, which can be used for analysis of customer use patterns, system maintenance, allocation of personnel, rate modeling, and financial planning. Operators who understand AMI data could then combine it with SCADA data from their systems to develop a more thorough understanding of how water moves through their system and the associated hydraulics.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 7:30:00 AM 11:00:00 AM **Location** **CEUs**
E ID/OR/WA 0.3/0.3/0.3 Pending

Track **Author**
Water Quality Melinda Friedman

Presentation Title

Flint Michigan Distribution System Water Quality and Corrosion Control Assessment

Description

Several professionals from the PNWS region are working directly on the drinking water contamination crisis in Flint Michigan. This Special Topics Session will cover the impacts of litigation and corrosion control, assessment and optimization of distribution system O&M practices, optimization of disinfectant residuals for Legionella and E. coli control, and evaluation of source water changes on corrosion control scale stability. All utility managers and employees need to be aware of how their practices can impact corrosion control, lead release, and biofilm release. This presentation will shed light vulnerabilities that all utilities face, what went wrong in Flint, how these issues can be avoided, similarities and differences with PNWS utilities and State drinking water programs, and how to assess and demonstrate use of best management practices.

CEU Comment

Must attend all 3 hours for CEU credit

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	1:30:00 PM	2:00:00 PM	Location	CEUs
			E	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Water Quality	Jolyn Leslie

Presentation Title

DBP Formation Study in Groundwater Wells

Description

In 2015-2016 DOH conducted a DBP formation study that included 13 small groundwater systems in Island and San Juan Counties. We looked at a variety of chemical properties and constituents in the groundwater that may help explain why certain groundwater systems have much higher DBP levels (above the MCL) than other groundwater systems. One of the goals of this study was to determine what, if any, treatment approaches would be more favorable, based on the outcome of the study. Small systems oftentimes struggle with compliance of various regulated contaminants. The majority of research and recommendations for addressing DBPs is targeted at surface water systems, not groundwater. This study (to be complete by Sept 30, 2016) will hopefully help identify specific changes or treatment that will be effective for groundwater systems in reducing DBP levels.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	2:00:00 PM	2:30:00 PM	Location	CEUs
			E	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Water Quality

Author

Bill Persich

Presentation Title

Balancing DBP Formation with Corrosion Control Concerns for a Blended Water Supply on Maui

Description

The County of Maui, Hawaii is going through a process to retrofit their existing surface and ground water supply system to provide additional resilience for drought management that will combine supplies that are chloraminated due to disinfection byproduct concerns with supplies that are disinfected with free chlorine. A study is underway to identify appropriate chemical dosing to provide chloramination at the Upper Kimo Tank Booster station (anhydrous ammonia and sodium hypochlorite) . Moreover, these studies will investigate the appropriate use of corrosion control chemicals to optimize pH and alkalinity for the control of lead and copper corrosion. This presentation discusses methodologies to blend and dose the composite water to achieve desired water quality, balancing the requirements of the Lead and Copper Rule with the Stage 2 DBP Rule. This presentation offers insights to water supply engineers and facilities operators to optimize chemical additions resulting from the blending of two distinct water supplies. Concerns of disinfection by products, chloramination, and corrosion control are investigated to illustrate how to achieve compliance with governing water quality regulations.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	2:45:00 PM	3:15:00 PM	Location	CEUs
			E	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Water Quality

Author

Damon Roth

Presentation Title

Lead Sampling Strategies

Description

The current Lead and Copper Rule (LCR) requires collection of compliance samples from the first liter at the tap following a minimum six-hour stagnation period. Given some of recent lead exposure concerns in Flint (MI), Washington D.C., and other locations, there is debate among experts as to whether this sampling protocol is effective at capturing elevated lead levels. Cornwell Engineering Group (formerly EE&T) recently completed research to see if alternate lead sampling strategies could better capture the risk for residences served by lead service lines. This presentation will focus on the findings of that study. This research is important to all utilities required to comply with the Lead and Copper Rule (LCR), and the forthcoming LCR-Long Term Revisions. This presentation will give operators, engineers, and managers data on different lead sampling strategies, and will provide public officials information on how to describe potential lead exposure.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	3:15:00 PM	3:45:00 PM	Location	CEUs
			E	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Water Quality

Author

Benjamin Klayman

Presentation Title

A Holistic Look at the Presence of Lead in Water Distribution Systems

Description

Utilities are currently experiencing a heightened national public interest in drinking water distribution system water quality related to the presence of lead-containing pipe materials and release of lead and other accumulated metals. This presentation gives an overview of pressures utilities are facing including a discussion on the increase in public requests for information, press articles, and the upcoming Lead and Copper Rule (LCR) revisions. Case studies will be presented highlighting actions utilities in the Pacific Northwest and across the nation are taking in terms of operations, maintenance, and planning. This discussion will include examples of public communications strategies targeted at the presence of lead; lead pipe identification and replacement programs (including GIS asset mapping and available field tools); desk-top, bench-scale, and pilot-scale testing corrosion experiments; and a review of compliance requirements for current and anticipated future LCR regulations. This presentation will increase the knowledge of operators, maintenance workers, and managers related to lead release in its distribution system. This presentation will give operators and other utility staff tools to minimize lead release in its distribution system, thereby increasing water quality and public health protection. Recommendations will be given for specific activities which operators, maintenance workers, and managers can do to improve water quality and public health protection.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	4:00:00 PM	4:30:00 PM	Location	CEUs
			E	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Water Quality

Author

Eloise Eccles

Presentation Title

Practical Training Methods for Water Main Disinfection

Description

Compared to most routine maintenance and construction jobs for water distribution systems, water main disinfection is one with more than the usual number of steps and decision points. It also requires dosing equipment and water testing methods that are less frequently used by field crews. To cement the process for people who do this work, a practical, "hands on" training session was created and delivered to Water Operation Mechanics and Apprentices at Portland Water Bureau. This presentation describes how the training was structured and delivered to the employees. This presentation describes training that enables a utility to meet the AWWA standard for Water Main Disinfection. It is applicable to all operators who construct or repair watermains, which must be disinfected before they can be put into service.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	4:30:00 PM	5:00:00 PM	Location	CEUs
			E	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Water Quality

Author

Kimberly Gupta

Presentation Title

Managing Hypochlorite to Reduce Chlorate Formation: A Utility Case Study

Description

This presentation will discuss the formation of chlorate in bulk hypochlorite solutions and methods used by the Portland Water Bureau to decrease chlorate formation. Preliminary results comparing chlorate formation in standard hypochlorite solutions vs. low salt hypochlorite solutions will also be presented. Many utilities use bulk hypochlorite solutions for disinfection. However, hypochlorite can degrade into unwanted chemicals such as perchlorate and chlorate. It is important for operators to understand the chemical processes that occur when hypochlorite degrades as well as mechanisms to decrease the formation of unwanted chemicals.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 7:30:00 AM 8:00:00 AM **Location** **CEUs**
H ID/OR/WA 0.05/0.05/0.05 Pending

Track

Water Treatment

Author

Steve Deem

Presentation Title

Disinfection Data Integrity - Accuracy and Precision in Treatment

Description

In 2014-2015 WDOH conducted the Disinfection Data Integrity Project (dDIP). This yearlong study investigated disinfection measurement, recording and reporting practices in 33 surface water treatment facilities in the NW Region of Washington State. The participating systems range from the largest surface source (180 MGD) in the state to the smallest (1.0 gpm). We reviewed all primary disinfectant processes used by these water systems – chlorination, ozonation, and UV light. Deficiencies were identified in all 33 treatment plants that affect the accuracy and consistency of the calculated pathogen inactivation achieved by the disinfection processes. Pathogen inactivation level errors of over 100% were identified when more accurate data was used. This presentation describes the study, the results and findings including root causes and offers explicit design and operational suggestions to improve data integrity. Disinfection is a foundation of surface water treatment and usually the final step before water enters the distribution system to be consumed by the public. Accurately determining chlorine disinfection inactivation levels is very complex! Three water quality parameters: Cl₂ residual, pH, and Temperature are used along with Time (the time disinfectant is in contact with water before the first customer) to determine disinfection efficiency. Time is dependent upon three more parameters: the volume of the contact vessel, the baffling efficiency of the contact vessel, and the water flowrate. Water systems in our study determined flowrate five different ways! Each one of these 11 components can and do affect data integrity and impact the accuracy of calculated disinfection inactivation levels used to ensure public health protection. Attendees will be reminded of the critical importance of accurate data and of how to obtain, maintain and ensure this data integrity.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	8:00:00 AM	8:30:00 AM	Location	CEUs
			G	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Water Treatment	Kenny Packard

Presentation Title

Lessons Learned from Walla Walla: Eastern Washington's Largest GC/CM Water Project

Description

With a protected watershed and pristine raw water the City of Walla Walla currently operates 24 MGD unfiltered sedimentation/ozone treatment plant. In order to comply with the Long Term 2 Enhanced Surface Water Treatment Rule the City selected a cost effective treatment option of ultraviolet disinfection system to replace the aging and non-compliance ozone system. This presentation will examine various features of the plant upgrade from both an operational and regulatory compliance perspective as well as discuss the project's delivery method. The project is being delivered under a construction manager at risk model known as GC/CM in the State of Washington and is currently in the early stages of construction. Addressing impacts to existing operations is a challenge that operations staff and design engineers face whenever a plant upgrade is undertaken. This presentation will discuss how this challenge was navigated through intensive and routine collaboration between operations staff, design engineers, utility management and the contractor as part of the GC/CM delivery model. In addition, it will discuss various design features that address issues such as algae control that similar systems may experience and be looking to address. The content is ideal for drinking water operations staff, utility managers, and design engineers who collaborate to deliver projects to upgrade drinking water infrastructure across the Pacific Northwest region.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 8:45:00 AM 9:15:00 AM **Location** **CEUs**
H ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Water Treatment Enoch Nicholson

Presentation Title

Full Scale Performance Demonstration of New Media Configuration at the JWC WTP

Description

The Joint Water Commission (JWC) WTP has been operating at or near the current plant capacity in the last few years. The primary driver has been shorter than expected filter runs leading to increased backwashing and strain on the backwash handling system. JWC decided to test a slightly modified media configuration during a changeover of media to determine if this new media configuration would improve filter performance. Full scale demonstration testing was conducted to 1) determine if the new media configuration would improve filter performance and 2) to gain approval for operation at high loading rates (8.7 gpm/sf) from the state. This presentation will present the background, methodology, and results of this successful testing. This topic is applicable to operators and engineers as it will help them to understand the basics of filter media design, as well as the critical success factors to performing full scale filter testing in the absence of previous pilot testing.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	9:15:00 AM	9:45:00 AM	Location	CEUs
			H	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
Water Treatment	Beth Mende

Presentation Title

Getting to Non-Detect PFCs in Drinking Water as Fast as Possible: the City of Issaquah, WA Experience

Description

The EPA established a health advisory limit for Perfluorinated Compounds (PFCs) in 2016. PFCs were detected above the EPA's health advisory limit in a drinking water well source in the City of Issaquah, Washington. The City worked with the Department of Health to design, permit, construct, and start-up a treatment system with granular activated carbon filters in a 2 month time period to successfully remove contaminants and supply clean drinking water to their customers in time for the peak summer demand season. This presentation will discuss PFCs as an emerging contaminant of concern and the implementation of treatment removal technologies in response to high PFC levels in drinking water supply. With new contaminants emerging, the need for new technologies continues to grow and the need to treat and remove these contaminants is an ongoing issue being faced in the water industry. This project was in response to high levels of PFCs detected in a City's water supply. This presentation will introduce and provide insight into options for removing PFCs from drinking water sources and the challenges faced by utilities in implementing, operating, and maintaining new treatment systems, including the costs for implementing these systems.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	10:00:00 AM	10:30:00 AM	Location	CEUs
			H	ID/OR/WA 0.05/0.05/0.05 Pending

Track

Water Treatment

Author

Todd Reynolds

Presentation Title

Innovative WTP Upgrades Reduce DBPs and Improve Water Quality

Description

Kennedy/Jenks Consultants worked with the San Benito County Water District (SBCWD) to reduce DBPs and improve the water quality from their Lessalt WTP in Hollister, CA. Based on an evaluation and comparison of treatment process alternatives, the newly upgraded facility consists of greensand roughing filters for iron, manganese, and TOC reduction with coagulation followed by GAC filters for further reduction of TOC. This presentation will review the process improvements for the newly upgraded Lessalt WTP, lessons learned and the first few years of water quality performance data. Management, Engineering and Operations Staff will learn about the Lessalt WTP DBP reduction project, lessons learned during start up, process optimization, and water quality performance for TOC, iron, manganese, and disinfection by-products reduction. Operators can use this information to improve or optimize their facility and system's water quality.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 10:30:00 AM 11:00:00 AM **Location** **CEUs**
H ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
Water Treatment Eric Mende

Presentation Title

OWUC Ozone Coalition – Collaborating with Regulators to Protect Public Health

Description

Several large public water utilities in Oregon formed a coalition, under the auspices of the Oregon Water Utilities Council (OWUC), to collaborate with the Oregon Health Authority (OHA) to consider a change in the State's current drinking water regulations. Specifically, this 'Ozone Coalition' requests that the requirement for 0.5-log inactivation of Giardia and 1.0-log inactivation of viruses downstream of filtration be eliminated or waived for water treatment plants (WTPs) that achieve required CT values through the use of pre- or intermediate-ozonation. The Coalition is working in collaboration with OHA to confirm that the requested rule change meets EPA SDWA and LT2 requirements and will not increase any public health risks with respect to overall disinfection performance. If successful, the change will make ozone a cost-effective disinfection alternative, allowing communities to take advantage of the many other water quality and treatment benefits offered by ozone. This presentation will be relevant to anyone in a municipality that currently uses ozone or may consider it in the future. Topics that will be covered in detail are the current regulations, how the original CT tables were developed, the relationship of turbidity and ozone disinfection effectiveness, pathogen proliferation in biofilters, and rule change case studies. Operators will come away with a better understanding of ozone disinfection, which can be applied to improve water quality and better protect public health.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 1:30:00 PM 2:00:00 PM **Location** **CEUs**
F ID/OR/WA 0.05/0.05/0.05 Pending

Track **Author**
WITC Arnab Bhowmick

Presentation Title

Integrating Asset Management: Internet of Things (IoT)

Description

As local government is moving into mobile and cloud solutions, more and more avenues are opening up for M2M communication and integration between machines and systems. The "silo" systems are fast becoming history, and more interactive systems are emerging that can communicate with each other and also leverage artificial intelligence. The local govt. infrastructure depends on a bunch of sensors, software, and hardware. What if they can intelligently communicate to thwart risks, become resilient or even trigger event based actions? This will increase productivity, and life of infrastructure while preventing from failures and becoming resilient in times of crisis. The Internet of Things can be leveraged big time to deliver an integrated well communicating system in near future. Every O&M, PW Ops, IT resources, department heads and managers should benefit from this presentation to become aware of how various systems within the organization can be integrated, and how IoT can bring things together. Local govt. is going mobile and cloud, and that is the future. Its also important to understand how IoT can be leveraged to deliver an integrated future. This will benefit overall operations efficiency and organizations' productivity by implementing integrated systems within the organization.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	2:00:00 PM	2:30:00 PM	Location	CEUs
			F	ID/OR/WA 0.05/0.05/0.05 Pending

Track	Author
WITC	Mark Cummings

Presentation Title

Automated Meter Reading Systems: Broken to Fixed

Description

Automated meter reading (AMR) systems are revolutionizing the way in which water utilities collect meter readings and are providing the ability to generate useful troubleshooting and design data. Case Study: The City of Nampa, with a population over 80,000, had a broken AMR system and needed to upgrade meter reading capabilities for its entire service. This presentation will review how the project effectively installed a new fixed base AMR system and integrated it into the City's Water, Utility Billing, and Information Technology departments. This presentation will provide an overview of AMR systems and examples of lessons learned during contractor prequalification, bidding, construction, system integration, and City Staff operation and maintenance. Automated meter reading (AMR) systems are providing near real-time reads of water meters for multiple uses: improved customer service, decreased field O&M time, improved billing accuracy, useful troubleshooting and design data, and water conservation. This presentation will provide an example of how to implement an AMR system and then turn around and use the system to provide better customer service, operations, and maintenance while collecting accurate reads.

CEU Comment

Must attend full hour for CEUs

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016 2:45:00 PM 3:45:00 PM **Location** **CEUs**
F ID/OR/WA 0.1/0.1/0.1 Pending

Track **Author**
WITC Barry Buchanan

Presentation Title

Turning Data To Knowledge

Description

Our world has become a data rich environment, but without methods of capturing, manipulating, and interpreting the data, the data is of no specific use. Capturing, manipulating, and interpreting the wrong data is just as futile. Hence as wet utility operatives and managers we must be selective in our data harvests, and astute in our choice of tools. Historically, and to some degree still today, the name Asset Management has been synonymous with having a Computerized Maintenance Management System (CMMS). CMMS is just another tool in the Asset Management tool box. This presentation will discuss the tools that make up the tool box and the data that is needed to utilize the tools to their best advantage in an asset management environment. There is a significant number of wet utility organizations that have limited information about their costs related to their day to day operations and maintenance. There are many organizations that do not know their total asset holdings, their value, or current condition. There are many organizations that do not prioritize their capital investment program with highest risk, poorest condition assets first. This presentation will identify the benefits of collecting, collating, and evaluating the appropriate data to enable an improved understanding of an organizations asset management responsibilities. This presentation will marry the appropriate tools with the data and the outputs to enable organizations to continually improve their work environments for operational optimization, maintenance and capital works prioritization.

CEU Comment

2017 PNWS-AWWA Conference - Session Summaries

May 5, 2016	4:00:00 PM	5:00:00 PM	Location	CEUs
			F	ID/OR/WA 0.1/0.1/0.1 Pending

Track

WITC

Author

Michael Espejo

Presentation Title

Aquadvanced Energy - Suez Water Idaho, paving the way to System Optimization

Description

This presentation will provide a detailed description of how Suez Water Idaho implemented an Energy Management / Pump Optimization tool to improve their Potable Water Distribution System Operation. The Aquadvanced Energy Software utilizes the SCADA infrastructure to schedule pump starts / stops to: meet demand, reduce energy costs, improve pump efficiency to deliver water all while meeting system and operational constraints. This presentation will give the certified attendee a look into how the Potable Water System can be operated by using "Demand Forecasting", System conditions, energy pricing and system optimization. The "water quality" component of the software assures the water quality is not at risk while attempting to reduce energy costs.

CEU Comment