



Annual Technical Conference and Vendor Expo February 23-25, 2020

Virtual Schedule of Events

February 23, 2020 DISTRIBUTION AND STORAGE

2.5 TCH

9:00am-12:00pm

Important Items and Department Initiatives

Lori Mathieu, Public Health Branch Chief, CT Department of Health-Drinking Water Section

Rehab of 150-Year-Old Pump Station

Amanda Ziegler, P.E., Wright-Pierce

Mariusz Jedrychowski, P.E., Wright-Pierce

The presentation will review a project which included rehabilitation of a raw water supply and 70 MGD hydroelectric pump station from 1885 and replacement of raw water, and electric turbine sluice gates and a fuel tank at the Windham Water Works (WWW) facility. WWW retained Wright-Pierce to evaluate the issue and assess the original equipment, which was still in place but no longer operational, including the original wooden sluice gate used to control flow to the active hydroelectric turbine. The presentation will describe the approach taken to evaluate the raw water pump station building and equipment and rehabilitation methods.

HDD with Ductile Iron Pipe

Roy Mundy,

Lead Has a Beautiful Profile - Sequential Sampling as Part of Corrosion Control Optimization

John Civardi, P.E., Mott MacDonald

David Goncalves, Mott MacDonald

The Pittsburgh Water and Sewer Authority (PWSA) has engaged in an intensive investigation to reduce lead at the point of use. Orthophosphate addition was implemented in April of 2019 in a phased approach. Prior to the release of the Draft Lead and Copper Rule Revision, the PWSA enacted a home profiling (sequential sampling) program. The home profiling program was initially used to assess the effectiveness of the orthophosphate addition. Home profiles were collected on multiple occasions prior to the addition of orthophosphate. Upon addition of orthophosphate, these homes continue to be “profiled” as part of PWSA’s corrosion control optimization program.

Contaminant Review Lead & Copper

Cindy Sek, CT Department of Health-Drinking Water Section

February 24, 2020 MANAGEMENT

2.5 TCH

9:00am-12:00pm

Asset Management & Capital Plans for System-Wide Water Distribution

Mariusz Jedrychowski, P.E., Wright-Pierce

Christine Mandeson, GISP, Wright-Pierce

The Springfield Water and Sewer Commission operates drinking water systems serving a total population of 250,000, which includes 620 miles of water distribution mains aging back to 1800s. The Commission is committed to developing asset management (AM) and capital improvements plan (CIP) to better manage its water distribution system and, as part of this commitment, retained Wright-Pierce to develop these plans. This presentation will summarize development of the Commission's water distribution AM and CIP including asset inventory, condition assessment; mapping; level of service; prioritization of water main replacements based on their likelihood and consequence of failure; and ranking of projects.

Integrating End Use Accounting and Econometrics for Long-Term Demand Forecasting

Jack Kiefer, P.E., Hazen and Sawyer

This presentation describes the development of a hybrid water demand forecast model for South Central Connecticut Regional Water Authority (RWA), which provides water to over 400,000 customers in and around New Haven County. Based on an assessment of available data, a mix of econometric and end-use accounting approaches was recommended to provide the most flexibility for explaining historical demand trends and translating this knowledge to construct future forecasts. End-use accounting was used to trace and project indoor consumption trends primarily for the residential class. This model was to develop a long term demand forecast for the RWA to 2070.

Emerging Approaches to Holistic PFAS Management in the Water Cycle

Christopher Curran, P.E., AECOM

Tom Loto, P.E., AECOM

The presentation will share examples of PFAS treatment challenges and emerging strategies for PFAS removal from both groundwater and surface water potable supplies and effective management of waste streams including ion exchange resin regeneration streams for ion exchange and novel adsorbents, reverse osmosis reject, and along with impacted water treatment plant residuals such as spent GAC media. A comprehensive approach is important to effectively mitigate the impact of PFAS to our environment. The presentation will describe data from a PFAS destruction technology using electrochemical oxidation to manage PFAS in waste streams derived from removal of PFAS from various environmental media.

Drought Risk Management Using Dynamic Reservoir Operations in Southwestern Connecticut

Steve Nebiker, Hazen and Sawyer

Robert (Jeff) Ulrich, P.E., Aquarion Water Company

Aquarion Water Company has taken the lead on finding improved ways of operating and planning for its water supplies, including the development of its own water supply models and operating rules that can be tested and implemented with those models. The presentation will talk about the initial development of the forecast-based operating rules following the severe drought in 2016, the subsequent refinement of the rules, and how they have performed during the most recent drought in 2020. Aquarion provides a powerful case study through its implementation of sophisticated drought planning that balance reliability against the hardships of imposing drought-related actions.

Water Supply Planning & WUCC Implementation

Mike Hage, CT Department of Health, Drinking Water Section

ATCAVE AGENDA

February 25 2020 WATER QUALITY AND TREATMENT

2.5 TCH

9:00am-12:00pm

Aquarion Water Chlorination Improvements Initiatives

Phat Phung, Aquarion Water Company

Zachary Kuegler, P.E., Snyder Civil Engineering

Aquarion Water Company proposed an initiative in 2019 to add disinfectant to all of its non-chlorinated water systems by 2021. The goal was to reduce the risk associated with operating non-chlorinated systems, specifically the risk to human health; risk of unplanned outages; and the risk associated with drinking water quality non-compliance. The short-term plan includes chlorination committee meetings with a consulting engineer to evaluate each system regarding site security, source protection improvements, and site conditions. Long term plans were divided into six multi-facility projects, all of which are being designed, constructed, and placed into service by end of 2021.

Large Scale Ion Exchange Water Softening System - A First of Its Kind in New England

Ryan Fleming, P. E., Weston & Sampson, Inc.

Robert Gallo, P.E., Valley Water Systems, Inc.

Valley Water Systems operates a public water system serving the Town of Plainville, Connecticut. The system is supplied by two wellfields. Hardness from each wellfield is deemed Extremely Hard according to USGS and AWWA literature. Customer complaints from 2016-2017 resulted in widespread media coverage and the situation ultimately resulted in commissioning of the design for an ion exchange water softening system. This softening system is the first of its kind in New England. Our presentation will demonstrate a unique, split-stream, strong acid cation exchange treatment technique for hardness reduction from the Woodford Ave wellfield including brine storage and regeneration processes.

Public Water System Compliance Updates

Christopher Roy, CT Department of Health, Drinking Water Section

Ion Exchange Resin Solution Combines Source Area PFAS Remediation with Treatment of Public Water Supply

Steve Woodard, PhD., P.E., ECT2

AFCEC's response to PFAS in groundwater at Pease included the installation and operation of a full-scale regenerable ion exchange (IX) resin system to remediate groundwater impacted by years of firefighting training activities. The IX system was selected based on the results of a comprehensive pilot test that evaluated and compared multiple technologies. In parallel, PFAS contamination was detected in the City of Portsmouth (City) public water supply and needed treatment. The City decided to run a pilot test of IX resin versus Granular Activated Carbon (GAC). The study concluded IX + GAC would be the best solution.

Pilot-Scale Assessment of Ferrate for Water Reuse

Charles Spellman Jr., University of Rhode Island

Joseph Goodwill, P.E., Ph.D., University of Rhode Island

Potassium Ferrate is an emerging, sustainable treatment technology. Ferrate is a strong oxidant capable of removing contaminants and inactivating pathogens, while producing minimal halogenated byproducts and decaying to ferric iron. Increased demand and droughts have stressed water systems, creating the need for sustainable water sources. Wastewater effluent has emerged as a potential source via recycling (reuse). This presentation will report the results from continuous-flow (~0.5 gpm) studies analyzing the impacts of dosing potassium ferrate as a pre-oxidant utilizing a water reuse pilot system. The pilot system includes pre-oxidation, coagulation, adsorption-clarification, and dual-media filtration along with an array of online instrumentation.

At the time of publication, DPH Training Contact Hour Applications for technical sessions were pending.