



Water Conservation in California is Impacting the Collection Systems, Performance of Wastewater Treatment Plants and TDS in Recycled Water

This Workshop provides insight to the technical challenges of designing, managing and operating wastewater treatment plants with rapidly changing conditions as a result of water conservation.

Who Should Attend: Plant Owners, Managers, Operators, Technicians and Designers

What to Expect from the Workshop: Gain insight from experts working in the field through a workshop format of dialogue, discussion, case studies, tips and solutions.

Aggressive water conservation in California communities is changing the nature of sewage collection and treatment. Reduced flow from household and commercial water fixtures provides less volume and velocity in sewers, and increases detention time. Coupled with elevated temperature in many areas, the physical collection and conveyance systems become biological reactors. This increases odor and corrosion in collection system and pumping stations. The septic conditions stimulate undesirable biology to produce more dissolved sulfide, ammonia and odorous, soluble BOD. This changes the loading characteristics to the treatment plants.

The impact of this condition is measurable and significant. Throughout California and the Southwest, treatment plants have suffered major upsets, violation of stringent discharge requirements and have incurred significant increased cost for energy and chemicals. Increased loading is increasing wear and tear on equipment and infrastructure, reducing performance and maintenance reliability. The change in ammonia and organic loading is challenging design capacity of many facilities and has had the effect of both reducing rated capacity and increasing the demand and cost of energy and chemicals, while decreasing gas production in anaerobic digesters. Further, household water conservation has led to increases in TDS in influent sewage. Changing water chemistry has often required higher dosage of treatment chemicals, further increasing effluent TDS and creating challenges in water reuse markets and applications.

This workshop opens a peer-to-peer dialog to gain an understanding of the regional impacts of current conditions, the threat to compliance and the challenge to process control. It also is intended to provide an overview of the gaps in the industry that must be filled with an understanding of changing conditions, trends, process strategies and technological alternatives.

The workshop will also include a brief summary of the Public Policy Institute of California's survey of wastewater managers on their experiences before, during, and after the latest drought. The results of the survey (over 125 responses from agencies around the state) are being analyzed to understand: the impacts of local conservation (both acute and long-term), the trends in water reuse, and the tradeoffs with downstream uses and in-stream flows. Researchers are also looking to local agencies to illustrate some of the challenges and innovations.



The structure of the workshop has two goals:

- 1) Provide information and insight to current and future conditions; and
- 2) Open a peer-level dialog to meet the challenges and improve infrastructure reliability, capacity, compliance, process control and energy demand.

Questions for attendees:

Over the past five or so years, has your agency noticed the following:

- 1) Any changes in influent quality relative to BOD (especially soluble BOD), TSS and Ammonia-n
- 2) Negative changes in performance of primary clarifiers, gravity thickeners and anaerobic digesters (i.e. reduced gas production and/or poor gas quality?)
- 3) Increased energy demand for Activated Sludge aeration and/or mixed liquor recycle (for BNR systems)?
- 4) Increased coagulant chemical demand for tertiary filtration?
- 5) Increased energy demand for UV disinfection, or increased chemical demand for chlorine disinfection?
- 6) Challenging increases in effluent TDS?
- 7) Increasing challenges to any effluent limits?