Multi Process Approach - One Single Solution

Clarification | Case Study

West Hills Water Treatment Plant

The Client

The West Hills Water Treatment Plant, owned by the San Benito County Water District, services the Hollister Urban Area (HUA) in San Benito County, CA. The drinking water source is supplied from the San Luis and the San Justo Reservoirs.

The Benefits

- Combination of ballasted clarification and enhanced TOC reduction
- Enables plant to meet DBP Goals
- Capable of handling varying influent conditions

The Client's Needs

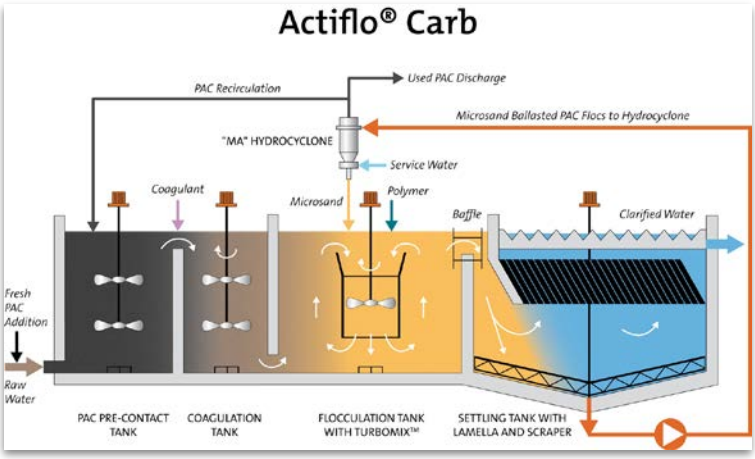
A joint effort between the city of Hollister, the San Benito County Water District and the Sunnyslope County Water District, the group proposed the West Hills Water Treatment Plant (WHWTP) project to improve drinking water quality, water supply reliability, and to balance regional water resources in the Hollister Urban Area (HUA). Historically, HUA relied primarily on local groundwater basins for meeting their drinking water demands. While groundwater met all drinking water regulations, it is high in minerals and hardness that often resulted in scaling and the need for further conditioning. Along with other initiatives, the WHWTP project enables the District to meet these goals through increased surface water capacity from the San Luis and San Justo Reservoirs.

With the use of additional surface water to it's drinking water supply and the potential season variation from each reservoir, the WHWTP project needed to also meet additional drinking water regulations that focus on the removal of disinfection byproduct precursors.

The Solution

Following an intensive evaluation process that included both pilot and multiple rounds of onsite bench scale testing to establish the ideal treatment technologies, the WHWTP consists of pre-oxidation, ballasted clarification, gravity filtration and finished water disinfection and storage. Given the potential variability in the source water, onsite testing evaluated both surface water reservoirs to ensure the treatment technologies chosen can meet all project goals. Kruger was selected to supply the ACTIFLO® CARB ballasted clarification system as part of the 4.5 MGD initial capacity of the WHWTP. The WHWTP is designed for future expansion to 9.0 MGD.

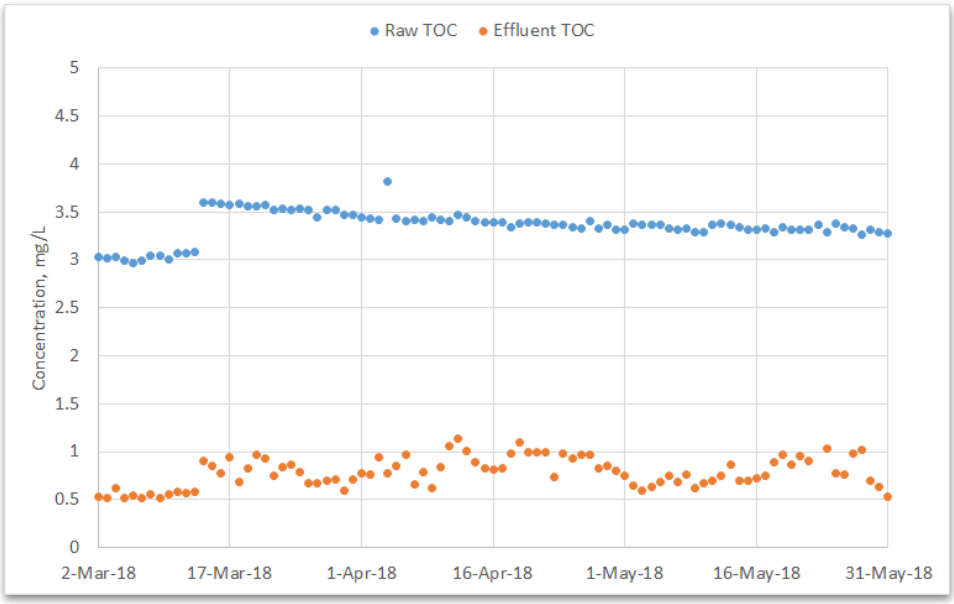
Process Description



The ACTIFLO® CARB system has been in operation since August of 2017 and combines the benefits of a high rate ballasted clarification system along with the adsorptive properties of powder activated carbon (PAC). The physical-chemical aspect of the proven ACTIFLO® technology along with a PAC reactor and PAC recirculation circuit that enhances the removal of Natural Organic Matter (NOM) and reduces OPEX.

PAC is widely used in drinking water treatment and well known for its efficiency in the removal of Natural Organic Matter, often measured through surrogate parameters such as total and dissolved organic carbon (TOC and DOC). PAC is not selective and is also efficient in its absorption and removal of taste and odor, and pesticides. Recent studies have also shown PAC to be effective in the removal of pharmaceuticals, personal care products (PCPs) and endocrine disrupting compounds (EDCs).

For the WHWTP, this process combination provided a highly efficient, compact system that can handle source and seasonal variations in influent water quality while maximizing NOM removal and ensuring the plant complies with water quality goals for DBP concentrations.



Results

The West Hills Water Treatment Plant (WHWTP) has been successful in improving water quality and balancing water resources within the region. The implementation of ACTIFLO® CARB is a key part of their treatment train and ensures the WHWTP is successful in removing the NOM precursors that lead to DBP formation. During the evaluation process, multiple iterations of onsite testing determined that an effluent TOC target of 1.2 mg/L was needed to meet DBP goals for both water sources. The ACTIFLO® CARB process has proven to consistently meet these TOC targets and gives the WHWTP operational flexibility to handle both source and seasonal variations in influent quality.

Veolia Water Technologies, Inc. dba Kruger
4001 Weston Parkway • Cary, NC 27513
tel. +1 919-677-8310 • fax +1 919-677-0082
www.veoliawatertech.com