

Targeted Treatment: Softening Solids CONTACT CLARIFIER™



CASE STUDY

Location: Oklahoma City, Oklahoma
Owner: Oklahoma Water Utilities Trust
Engineer: CH2M Hill
Contractor: Crossland Heavy Contractors

Seasonal Variable Quality

The Hefner Water Treatment Plant is one of three facilities that provide drinking water to Oklahoma City. The treatment plant draws its name and its raw water from the man-made Lake Hefner. This raw water is high in hardness, requiring targeted treatment.

To remove hardness and clarify water before filtration, Hefner employed three contact clarifiers. With a growing population, these clarifiers were having a difficult time meeting the demands of the community. In 2011, Hefner selected WesTech to provide two 130ft-diameter solids CONTACT CLARIFIERS™ as part of a total treatment plant expansion.

With the addition of two new clarifiers, the plant now employs five clarifiers with one used for redundancy. This configuration allows for simplified operations and maintenance while producing high-quality water.

WesTech's solids CONTACT CLARIFIER™ is an enhanced flocculation device with internal solids recirculation, gentle flocculation, and gravity sedimentation in a single unit. Compared to a conventional clarifier, high-volume internal solids recirculation accelerates the softening process and increases flow particle size.

Solids CONTACT CLARIFIER™	
Quantity	2
Dimensions	130 ft diameter
Design Flow Rate	17,400 gpm
Loading Rate	1.56 gpm/ft ²
Total Detention Time	155 min
Motor HP	2 HP

With the enhanced flocculation and accelerated softening provided by the solids CONTACT CLARIFIER™, WesTech improved the efficiency of the softening and clarification process at the Hefner Water Treatment Plant.

In this application, the solids CONTACT CLARIFIERS™ operated as large reaction basins which are followed by conventional filtration, allowing the water treatment

plant to increase capacity while still maintaining a compact footprint.

With the installation of the WesTech solids CONTACT CLARIFIERS™, Hefner is pleased with the ease of operation and the technical support provided by WesTech. At startup, the plant experienced water quality difficulties related to general chemistry of the raw water and the added chemicals. Representatives from WesTech made multiple trips to ensure the problem was solved.

The solids CONTACT CLARIFIERS™ at the Hefner Water Treatment Plant are reducing turbidity from an average of 8 to 0.8 NTU before filtration. Plant operators are able to increase the flow through the clarifiers while maintaining low effluent turbidity.