

## CASE STUDY

# Hammerhead On-site Screen Sizing Design Mitigates Algae Intrusion With Minimal Equipment Footprint



### SITUATION

Situated in the central part of the state, Albuquerque is the most populous city in New Mexico with a population of nearly 600,000. Due to a combination of windborne contamination upstream and long residence times in the clarifiers, algae growth is a major source of solids loading in the process stream. The current removal strategy for this contaminant is limited to a stationary coarse grate which captures a negligible amount of algae, allowing a majority of the solids to pass directly into, and fouling, the ultraviolet treatment units and other downstream processes. This caused a reduction in overall plant operational efficiency and significantly increased the amount of downstream process maintenance.

**Equipment:** Hammerhead Shark

**Location:** Albuquerque, New Mexico

**Date:** 2017

**Consulting Engineering Firm:** Brown and Caldwell



### SOLUTION

The Albuquerque Wastewater Treatment Plant worked with Hydro-Dyne to utilize the Hammerhead On-site Screen Sizing technology to better understand the characteristics of its clarifier effluent, and design a system to better protect against the intrusion of algae and other solids impacting their UV disinfection process.

Elimination of the suspended algae requires fine screening (~2mm), which can cause a large headloss if not sized properly. Twenty-three individual trials were performed using sample flows of wastewater to measure differential headlosses across a variety of mesh opening sizes. Each test scenario was programmed into the Hammerhead Shark's onboard PLC; every test ran until the sample for the desired opening size reached a predetermined blinding measurement. At the completion of each test, the technician removed and visually inspected the sample screening elements to note blow through and other distinguishing characteristics of the samples.

### RESULTS

With the characteristics of the influent now known, screens designed to handle peak flows of 60 MGD with 2mm wire mesh grid elements and variable frequency drives (VFD) were recommended. Screens of this design will capture algae and other suspended solids in the most effective and efficient way possible during high loading instances, while maintaining optimal headloss due to sudden algae blooms.

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