



TONKA EQUIPMENT COMPANY

Project Profile

Quebrada Water Treatment Plant at Camuy, Puerto Rico

DESIGN ENGINEER

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APPLICATION:

Surface water treatment on high turbidity river water.

TONKA PROCESS EQUIPMENT:

Two Heli-Cone™ upflow solids contact clarifiers and one Centralator™ four cell filter with Simul-Wash

PROJECT

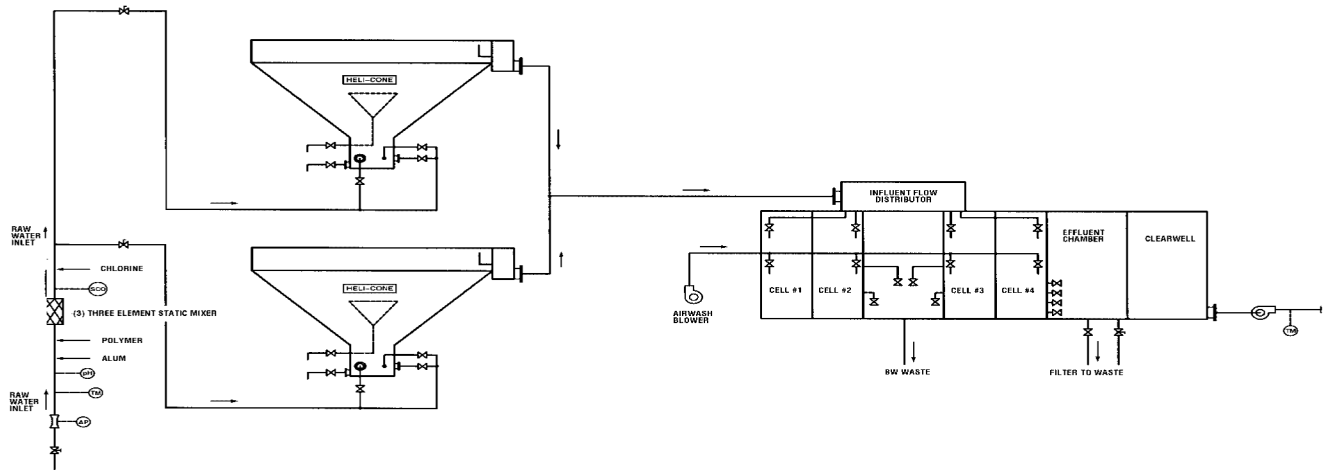
This surface water treatment plant was installed in 1996 and has been successfully operating at its rated capacity since starting up in 1997. It is designed for removal of severely spiking turbidity at a continuous design flow rate of 2MGD. Prior to installation, the plant was operating with a “package” treatment plant, which was incapable of meeting its rated design flow and US EPA turbidity standards.

PROCESS

The water supply is pumped from the Camuy River to the base of the Heli-Cones™. Chemicals for flocculation, coagulation and disinfection are added prior to the Heli-Cones™. Rapid mixing is achieved via a static in-line mixer. Sludge and backwash waste are discharged to a gravity thickener and then placed in evaporative drying beds.

The two Heli-Cone™ upflow solids contact clarifiers manufactured by Tonka Equipment Company are employed to absorb the high turbidity spikes and to prepare the water for filtration. This process uses no moving parts or motors to accomplish the design goals. The Heli-Cone™ uses the force of the water as it travels in a helical path through a suspended sludge blanket. Clarified water travels over weirs by gravity to the Centralator™, a dual media filter system. The four filter cells incorporate the value added Simul-Wash™ backwash process. This process utilizes air and water simultaneously for the most effective means of backwashing granular media filters. This process maximizes bed cleaning efficiency and minimizes media loss. The Simul-Wash™ process typically achieves a wastewater reduction of up to 50% over conventional water only backwashing while preventing mudball formation. The Centralator™ does not use any pumps at any time. Filtered water flows into a clearwell for distribution.

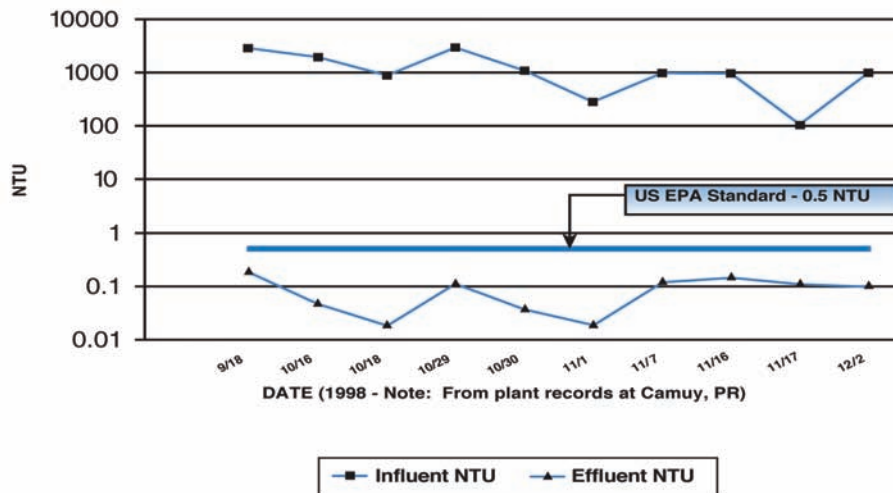
Controls consist of a Tonka PLC based NEMA 4 automatic control panel. This control panel automatically manages the Heli-Cone™ sludge blankets, and sequences each filter through simultaneous air and water backwash and restratification. The full treatment system can operate manually without using the PLC if required. The system is able to fully operate for extended periods without a local power supply.



PERFORMANCE

The raw water analysis curve below reflects the spiking turbidity levels of the Camuy River, which are common across Puerto Rico, reaching in excess of 3000 NTU. Tonka's two Heli-Cone™ upflow solids contact clarifiers have been able to achieve approximately 99% NTU removal; Tonka's Centralator™ filter removes the remaining turbidity producing high quality drinking water as shown below.

PLANT PERFORMANCE AT CAMUY, PR



FEATURES OF THE TONKA SYSTEM

- **Proven** - Proven installations on Puerto Rican waters
- **Heli-Cone™** - No moving parts, no motors, superior NTU reduction
- **Centralator™** - No pumps or moving parts required
- **Simul-Wash™** Technology - Maximizes bed cleaning, minimizes wastewater, reduces footprint and eliminates mudballs
- **Combined Process** - Small footprint; simple, low-tech operation; low energy demand; high quality water production

FOR ADDITIONAL DETAILS, CONTACT:

Tonka Equipment Company



TONKA EQUIPMENT COMPANY

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