



TONKA EQUIPMENT COMPANY

Project Profile

The City of Collinsville, IL

COLLINSVILLE WATER TREATMENT PLANT

Contact: **Bob Frank**
Water Department Director
(618) 346-5218
Mark Kinder
Chief Operator Water Plant
(618) 346-5219 ext. 12

DESIGN ENGINEER

Horner & Shifrin, Inc.
Contact: **Dennis L. Campbell, P.E.**
(314) 531-4321



APPLICATION:

Groundwater Treatment for Hardness Reduction using Lime Softening

TONKA PROCESS EQUIPMENT:

Cascade Aerator, Head Tank, Heli-Cone™ Solids Contact Clarifier

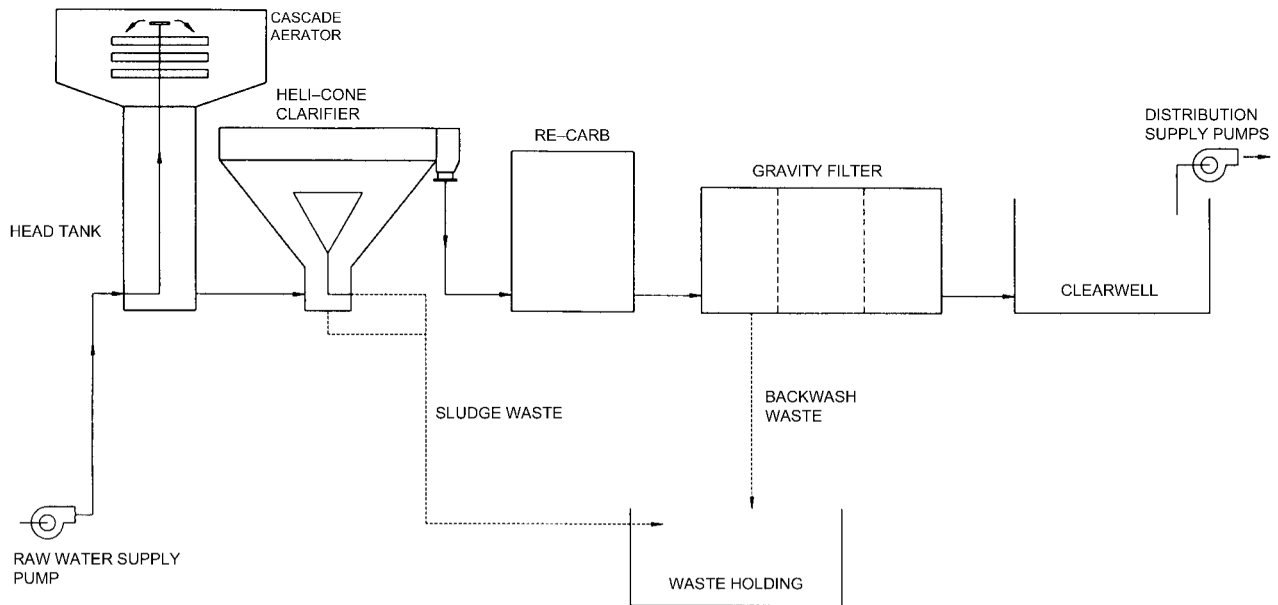
PROJECT BACKGROUND

This groundwater treatment plant was installed in 1998 and was designed for hardness reduction using lime softening at a design flow rate of 5 mgd. Prior to installation the plant was operating with an outdated aerator and clarifier.

PROCESS

The water supply is received from five groundwater wells. The water is aerated prior to chemical addition for pH adjustment, flocculation and coagulation. The water then proceeds through clarification, recarbonation, filtration, and distribution. Both sludge blowdown and backwash wastes are discharged to a lagoon. The spent lime is recovered by another nearby industry and does not go to waste.

A cascade aerator designed by Tonka Equipment Company is employed to oxidize iron from the groundwater. The aerator sits atop a head tank, which provides the needed water pressure that operates the Heli-Cone™. One 51'-6" diameter Heli-Cone™ solids contact clarifier designed by Tonka Equipment Company is utilized to remove the solids and reduce the hardness. Alum and lime are added just as the water enters the lower cylinder. The Heli-Cone™ uses only the force of the water supply to mix, flocculate, coagulate, and clarify the water. No moving parts or motors are needed as the water is forced to rise up through the clarifier in a helical path traveling through a suspended sludge blanket thus creating long contact times for solids removal. The clarified water travels by gravity into a recarbonation tank for pH adjustment. The water is filtered prior to entering a clearwell for distribution.



PERFORMANCE

The Tonka Heli-Cone™ solids contact clarifier has allowed the Collinsville plant to produce excellent quality water while reducing their lime usage by 24% as compared to the previous conventional lime softening clarifier system. This reduction saves 1,200 lbs. of lime per day!

FEATURES OF THE TONKA SYSTEM

- Proven installations on domestic and international waters
- No moving parts / No motors / Superior hardness and solids reduction
- Small footprint / Low energy demand / High quality water production

FOR ADDITIONAL DETAILS, CONTACT:

Tonka Equipment Company



TONKA EQUIPMENT COMPANY

763-55-WATER • 763-559-2837 • FAX: 763-559-1979 • www.tonkawater.com

P.O. BOX 41126 • PLYMOUTH, MINNESOTA 55441-0126 • 13305 WATERTOWER CIRCLE • PLYMOUTH, MINNESOTA 55441