



TONKA EQUIPMENT COMPANY

Project Profile

CARMEL, INDIANA WATER TREATMENT PLANT

WATER TREATMENT PLANT

Water Utilities Superintendent

Contact: Mr. Robert Lovell
317-571-2669

LOCAL TONKA REPRESENTATIVE

B.L. Anderson Company
765-463-1518

TONKA EQUIPMENT COMPANY

763-55-WATER



APPLICATION:

Iron Removal

PROJECT:

Carmel, Indiana is a rapidly growing suburb located 20 miles north of Indianapolis. Due to the population explosion, Carmel was facing a water deficit, and needed to move quickly to avoid summertime water shortages. The City teamed with Tonka and Jones & Henry Engineers to design a new 4 MGD water treatment facility on a fast-track timeline. The decision was made in 2004 to design the new peaking iron removal water treatment plant around Tonka's Dualator® III package treatment unit, which incorporates aeration, detention and filtration. This proved to be a very economical treatment solution, and a pre-purchase of equipment aided in meeting the tight timeline of the project. The Carmel water treatment facility includes three 950-gpm Dualator® III units for a total plant capacity of 4 MGD.

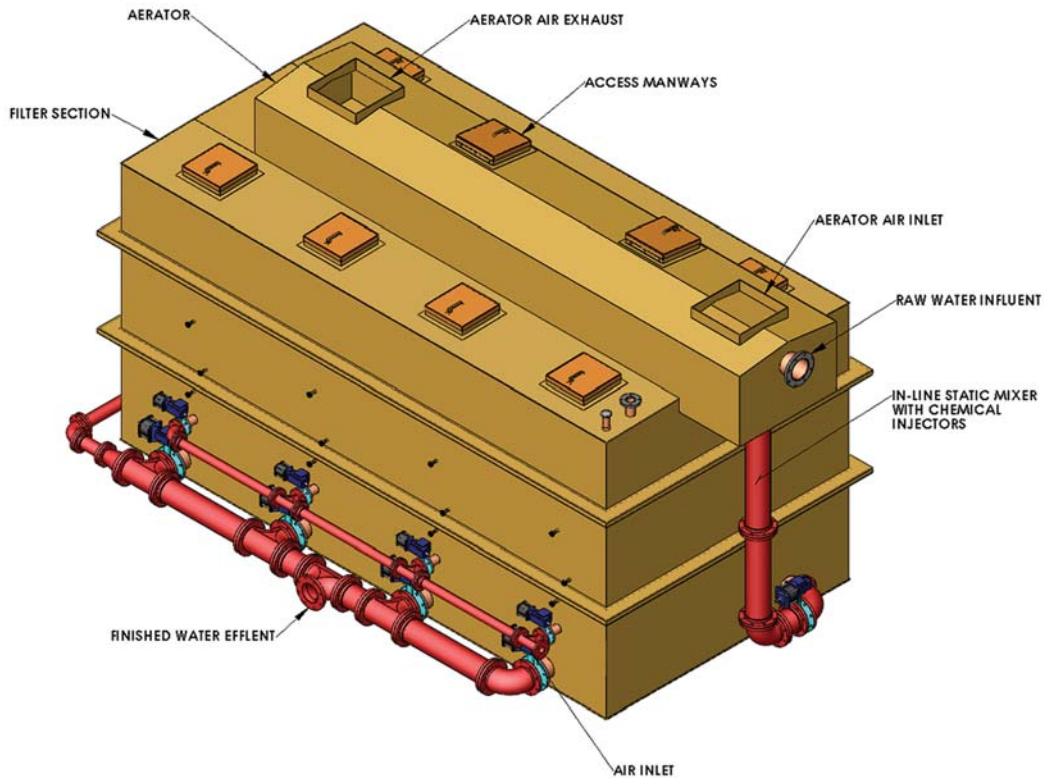
PROCESS:

Tonka's Dualator® III is a low-profile water treatment system that incorporates aeration, detention, and filtration in a single packaged unit. The treatment process begins as the raw water enters the aerator section of the Dualator® III where air is introduced to promote iron oxidation. The oxidation is completed while the water serpentine through the baffled 30-minute detention section. Water from the detention section is uniformly collected and transferred by gravity to the filter compartment where it is uniformly distributed into each filter cell. The water then filters through a dual media consisting of silica sand and anthracite where the iron precipitates are removed, and the effluent water flows into the clearwell.

All three of the Dualator® III filters at this facility are designed with the value-added Simul-Wash™ backwash process. This unique process uses air and water in combination, at sub-fluidization water rates, providing the most effective means of backwashing granular media filters.¹

TONKA PROCESS EQUIPMENT:

- ◆ Three Dualator® III units designed with Simul-Wash™ backwash method



Tonka Dualator® III

The Tonka Simul-Wash™ media retaining backwash trough is an important feature of the Simul-Wash™ system, which enables the combined air and water backwash cycle to continue for a sustained period of time without media loss. This process features optimal filter cleaning efficiency with approximately 50% reduction in backwash wastewater volume over conventional methods. Simul-Wash™ saved Carmel upfront capital construction costs, as well as significantly reducing their annual cost of operation through backwash savings.

PERFORMANCE:

The concentration of iron in the raw water at Carmel, IN is relatively high. The Tonka Dualator® III treatment units have been effective in delivering excellent effluent water quality, as indicated below:

4 MGD Treated Flow	Raw Water	Finished Water
Iron [as Fe]	2.75 mg/l	non-detect

FOR ADDITIONAL DETAILS, PLEASE CONTACT:

Tonka Equipment Company

¹ Amirtharajah, Appiah, et al. *Optimum Backwash of Dual Media Filters and GAC Filter-Adsorbers With Air Scour*, AWWA Research Foundation and American Water Works Association, 1991.



TONKA EQUIPMENT COMPANY

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

P.O. Box 41126 • Plymouth, MN 55441-0126 • 13305 Watertower Circle • Plymouth, MN 55441