

Client
City of Boca Raton

Scope of Services
Preliminary and final design,
permitting, bidding, and
construction administration.

Contact
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City of Boca Raton
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Start Date
01/2009

Completion Date
08/2011

Construction Cost
\$ 913,000 (bid)
\$ 940,392 (final)

Key MBC Staff
Frank A. Brinson, P.E.
Audra McCafferty, P.E.

Key Features
Process improvements
provided compliance with the
4-log virus
removal/inactivation
requirement under Chapter
62-555.320(12), Florida
Administrative Code and the
Federal Groundwater Rule
(GWR), as well
enhancements to the
nanofiltration membrane
cleaning and maintenance
operations.

Glades Road Water Treatment Plant Finished Water Disinfection and Chemical System Improvements Boca Raton, Florida



Background

The City of Boca Raton owns and operates the Glades Road Water Treatment Plant (WTP) which consists of a 40-million gallon per day (mgd) capacity nanofiltration process and a 30 mgd conventional lime softening process. The treated waters from the two processes are blended at a 2:1 membrane permeate to lime softened water (MP:LS) blend ratio to produce the finished water supply.

In June 2008, McCafferty Brinson Consulting, LLC (MBC) completed the *Compliance Plan for Chapter 62-555.320(12), Florida Administrative Code (FAC) 4-Log Virus Removal /Inactivation Requirement* for the City of Boca Raton. This plan presented recommendations for improvements to the process at the Glades Road Water Treatment Plant necessary to comply with requirements of the upcoming “bird rule” in Chapter 62-555 FAC. In January 2009, the City authorized MBC to proceed with design of the improvements recommended in the *Compliance Plan*, as well as other miscellaneous improvements to optimize the nanofiltration membrane cleaning and maintenance operations.

The Project

The scope of the project included the following:

- Provision of free chlorine residual, pH, and temperature monitoring for documentation of CT for 4-log virus removal/inactivation.
- Relocation of ammonia feed points for compliance with 4-log virus removal/inactivation while minimizing the formation of disinfection by-products (trihalomethanes and haloacetic acids).
- Installation of new 0.8% sodium hypochlorite eductors and feed points.
- Replacement of the automatic polymer batching machines for the lime softening process.
- Installation of hypochlorite piping for periodic disinfection of membrane cleaning tanks and piping.
- Installation of sodium hydroxide (caustic) piping and controls to provide a high pH permeate flush for control of organic fouling of the nanofiltration membranes.
- Installation of citric acid piping for batching of low pH membrane cleaning solution in the membrane cleaning tanks.
- Installation of variable frequency drives (VFDs) on the membrane cleaning and permeate flush pumps.

The contract for construction of the project was awarded to the Poole and Kent Company of Florida with the Notice to Proceed issued December 2010. MBC provided construction contact administration during construction. The project was completed on the original contract schedule in August 2011 with less than 3% change orders.