

Client
Broward County Water and
Wastewater Services
(BCWWS)

Scope of Services
Development of treatment
process recommendations,
desk-top laboratory
treatability studies, design
and construction
administration for
implementation of
recommended process
improvements, and
preparation of Demonstration
submittals to regulatory
agencies.

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Start Date
04/2015

Completion Date
11/2016

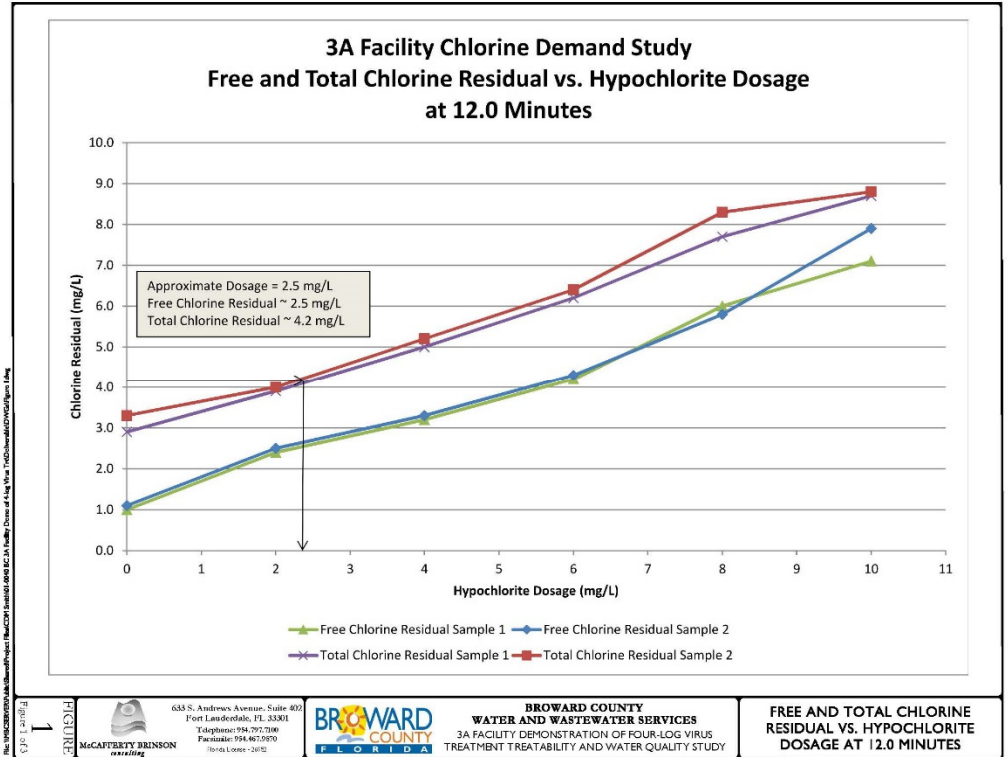
Construction Cost
\$1.59 million (bid)

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

Key Features
Four-log virus treatment of a
previously treated finished
water supply by breakpoint
chlorination followed by
ammoniation.

3A Facility Four-Log Virus Treatment Implementation

Broward County Water and Wastewater Services



Background

The Broward County Water and Wastewater Services (BCWWS) District 3A service area obtains its water supply from the City of Hollywood through a bulk purchase agreement. The City of Hollywood water treatment plant has not applied for demonstration of four-log virus treatment of the finished water as defined under the Federal Ground Water Rule (GWR). BCWWS elected to provide a higher level of disinfection for the water supply provided to the District 3A service area by providing a four-log virus treatment system with disinfection at the BCWWS 3A facility prior to distribution to the District 3A service area.

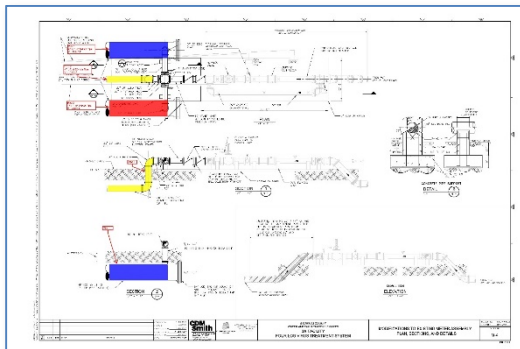
The Project

MBC's services for the BCWWS WTP 3A associated with four-log virus treatment implementation included the following:



- Treatability and Water Quality Study. The objectives of the Treatability Study were to verify that BCWWS could provide four-log virus treatment of the water supply delivered to the WTP 3A facility from the City of Hollywood, and to confirm that the proposed four-log virus treatment protocol would not adversely impact compliance with the D/DBP Rule or other water quality parameters. MBC found that BCWWS could implement four-log virus treatment by utilizing free chlorine disinfection in a newly constructed section of large-diameter pipe in the storage tank fill piping, and then apply ammonia to develop a combined chloramine residual. DBP levels in prepared water samples representing the proposed four-log virus treatment protocol were evaluated relative to compliance with the D/DBP Rule. It was determined that continued compliance with the County's goals for DBPs would not be compromised by the conversion to free chlorine disinfection of the process stream.

- Design and Construction of Treatment Process Modifications. Following completion of the Treatability and Water Quality Study, MBC provided design and construction services to implement the recommended process modifications. The modifications to the treatment process included:



- Construction of a new sodium hypochlorite storage and feed system.
- Construction of piping improvements to provide a free-chlorine disinfectant contact and compliance monitoring zone within the ground storage tank fill piping.
- Provision of free chlorine residual, pH, and temperature monitoring for documentation of CT for 4-log virus treatment.
- Relocation of the sodium hypochlorite and ammonia feed points for compliance with 4-log virus treatment while minimizing the formation of DBPs.

- Preparation of the "Demonstration of Four-Log Virus Treatment of Groundwater" submittal to the BCHD. The BCHD issued a conceptual Determination letter certifying the BCWWS WTP 3A as a four-log virus treatment facility on December 16, 2015 (pending completion of construction of the proposed process improvements).