

Introduction

The Borough of Kutztown Water Treatment Plant (Kutztown) obtains raw water from four groundwater under the direct influence of surface water (GUDI) wells in Berks County. Constructed in 2004, the filter plant serves the Borough of Kutztown and a portion of Maxatawny Township. Kutztown provides water to about 14,200 consumers through 1,868 metered service connections. Treatment currently consists of coagulation, clarification, filtration, nitrate removal, corrosion control and disinfection.

On November 17 – 18, 2021, staff from the Department of Environmental Protection (Department) evaluated the Kutztown filter plant for its ability to meet both regulatory requirements and optimized performance goals. Optimization is the process of continuously striving to improve the effectiveness of each treatment process in order to provide the highest level of consumer protection from waterborne pathogens and ensure long-term reliability. During the evaluation, each unit process was assessed for its ability to consistently meet the turbidity (≤ 0.3 NTU) and disinfection (≥ 1.0 log *Giardia* inactivation) requirements of the 25 PA Code Chapter 109. In addition, each individual treatment process was evaluated on its ability to continuously provide the optimized or most-effective barrier to the passage of microorganisms.

In this Filter Plant Performance Evaluation (FPPE), specific performance goals were used for the sedimentation, filtration and disinfection unit processes. These included settled water turbidity levels of ≤ 1.0 NTU when the annual raw water average is less than 10 NTU. The filters should have the ability to consistently produce a stable filtered water turbidity of ≤ 0.10 NTU.

See Attachment B for a complete list of optimization goals recognized by the FPPE program. These levels of performance are goal oriented but are considered necessary to consistently protect consumers against waterborne pathogens.

The evaluation team collected a raw water sample for EPA Method 1623.1 analysis (*Giardia/Cryptosporidium*). In-line turbidimeters were installed on the effluent of filter #1 and filter #2. The disinfection process was evaluated for pathogen inactivation. Other tests were performed and samples collected as appeared necessary during the evaluation.

After careful consideration of all findings summarized in this report, the Kutztown filter plant received an overall “**Commendable**” performance rating for its ability to remove and inactivate waterborne pathogens through optimized filter plant performance. Department staff have identified several issues that are affecting the plant’s ability to maintain optimized performance, including *Giardia* inactivation calculations, shut down setpoints and turbidimeter calibrations. Please refer to the comments section located at the end of this report for a prioritized list of comments related to improvements needed to consistently produce the highest-quality water.