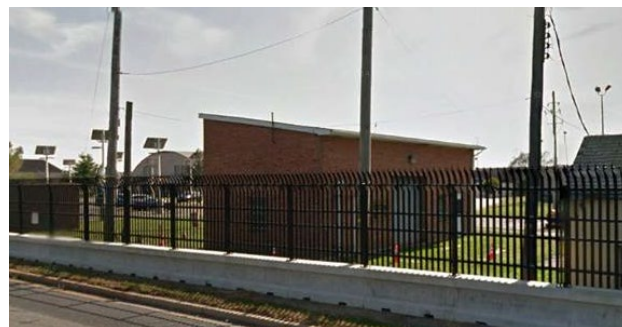


## Background

A water utility in the state of Delaware has potable groundwater wells with high levels of Fe (15 ppm peaks) with a combined flow rate of 1 MGD. The existing biological filter needed replacement due to extensive fouling, cost and excessive liquid waste structure. The well location is at a National Guard Air Force base. The iron needs to be removed in a cost-effective manner, with minimal waste generation.



A pilot verification test program was conducted using Purifics' **Cuf** (Continuous Ultra-Filtration) M16 platform. The client and its operators received training during setup and subsequently ran the pilot over several months with sustained results.

Parameter	Influent	Effluent
Fe (ppm)	15	<0.015*

\*below detection limit

## Solution

A **Cuf** M36 System for the purification of groundwater of Fe, installed in 2015, supplies drinking water to the community at 600 gpm from 3 wells. This 1 MGD **Cuf** platform is the entire plant, is NSF/ANSI 61 compliant and fits into the small building shown.



## Plant Operations

The **Cuf** system operates at 600 gpm drawing water from 3 wells at varying ratios. The incoming water has a pH of 6.7 with Fe levels of nominally 8 ppm. The Fe is removed below the detection limit (<0.015 ppm) and slipstream of the Fe rich concentrate is less than 1% of flow. Filtrate is discharged directly to the clear well. Sustained flux is 825 GFD (1400 LMH) at a typical TMP of 12 psi (0.82 bar).

TMP rinse occurs weekly and is performed automatically by the **Cuf** system. This involves the membrane module and TMP pump being automatically isolated, and a small amount of acid is injected to lower the pH. In about 30 minutes the process is completed, and the system is returned to service.

## Benefits

The benefits include; No chemical oxidizing agents, Reduces chlorine dose, Eliminates elevated THM potential, Energy 0.1 kWh/m<sup>3</sup>, System complexity reduction, Drastically reduced footprint over existing technology No backwash or CIP with minimal liquid waste, Ease of operation, integrated and fully automated.

