



AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

APPLICATION PROFILE

APPLICATION PHOSPHORUS REMOVAL

AQUA-AEROBIC SOLUTION Aqua-Aerobic® PILE CLOTH MEDIA FILTRATION

Meeting Effluent Phosphorus Limits with OptiFiber® Pile Cloth Media Filtration

Water resource recovery facilities across North America and around the world are facing increasingly stringent effluent total phosphorus limits. The addition of tertiary filtration is frequently required to meet these permit limits. Aqua-Aerobic Systems is the worldwide leader in tertiary phosphorus removal utilizing pile cloth media filtration.

Aqua-Aerobic Systems offers five different filtration media options that are designed to meet low level phosphorus limits. Most commonly, plants turn to the OptiFiber PES-14® pile cloth filtration media with a nominal rating of 5 microns. This media has been proven to achieve phosphorus limits as low as 0.043 mg/L.

Pile cloth media filters remove phosphorus by trapping particulate phosphorus within the depth of the filter media. In many cases, enough phosphorus is in a particulate and filterable form where the addition of filtration alone ensures that the permit is met. However, some cases require the addition of a chemical precipitant upstream of the filter to precipitate soluble phosphorus. In either case, pile cloth media filtration is an excellent solution.

Once the phosphorus is trapped within the depth of the filter media, an effective backwash is critical to clean the media. All OptiFiber® pile cloth media

options are engineered to backwash effectively with an open backing design that easily releases chemical and biological solids. This backwash water is typically recirculated to the head of the plant where the phosphorus is removed by settling with other solids.

Pile cloth media filters are available in a variety of mechanical configurations including the Aqua MiniDisk®, AquaDisk®, Aqua MegaDisk® and AquaDiamond® cloth media filters. This range of options is designed to meet the needs of each unique facility. Each of these filters feature OptiFiber media, an outside-in flow path, and the vacuum style backwash that ensure optimal performance in low level phosphorus applications.



AquaDisk® Cloth Media Filters with OptiFiber PES-14® Pile Cloth Media

PLANTS ACHIEVING ULTRA LOW TOTAL PHOSPHORUS WITH PILE CLOTH MEDIA FILTRATION

0.08 mg/L
Brockton WWTP
Brockton, MA



Start Up Date: 2014
Equipment: (4) AquaDiamond® Pile Cloth Media Filters
Media: OptiFiber PES-14® Pile Cloth Filtration Media
Permit: 0.01 mg/L-P During Growing Season
Performance: 0.08 mg/L-P

0.05 mg/L
Riverview WWTP
Birmingham, AL



Start Up Date: 2008
Equipment: (3) 10-disk AquaDisk® Cloth Media Filters
Media: OptiFiber PES-14® Cloth Filtration Media
Permit: TP < 0.2 mg/L-P During Growing Season
Performance: 0.05 mg/L-P During 2019 Growing Season

0.05 mg/L
Bartlett Bay WWTP
South Burlington, VT



Start Up Date: 1999
Equipment: (3) 12-disk AquaDisk® Cloth Media Filters
Media: OptiFiber PA2-13® Cloth Filtration Media
Permit: < 0.1 mg/L-P
Performance: <0.05 mg/L-P

0.03 mg/L
Rainbow City WWTP
Rainbow City, AL



Start Up Date: 2017
Equipment: (2) 12-disk AquaDisk® Cloth Media Filters
Media: OptiFiber PES-14® Cloth Filtration Media
Permit: 0.043 mg/L-P During Growing Season
Performance: 0.03 mg/L-P