

SUCCESS STORIES

AQUA-AEROBIC SYSTEMS, INC.



FROM PRETREATMENT... TO REUSE

PLANT NAME/LOCATION: Cumming, GA WWTP

TYPE OF PLANT: Municipal/Domestic

DESIGN DAILY FLOW: 3.0 MGD (15,142 m³/day) **PEAK FLOW:** 7.5 MGD (28,390 m³/day)

AQUA-AEROBIC PRODUCTS: 2 AquaDisk[®] Filters (8-disk)

AQUADISK[®] FILTER ACCOMODATES CUMMING'S VERY LIMITED SPACE AND HAS EXPANSION CAPABILITY WITH THE SAME FOOTPRINT

The Cumming Wastewater Treatment Plant serves approximately 35,000 people, which includes the city's population and portions of Forsyth County. It also receives industrial waste from a nearby food manufacturer who fries 100% of McDonald's breakfast sausage for the entire southern United States.

Cumming's treatment plant was built in 1992, employing an oxidation ditch to treat an original average daily flow of 2.0 MGD. In 1999, the plant underwent an expansion to accommodate an increased design daily flow to 3.0 MGD. Part of the expansion included the addition of tertiary filtration equipment in order to attain more stringent effluent TSS and Phosphorous requirements for final discharge into the Chattahoochee River.

Cumming first considered deep-bed filters for tertiary treatment, but after many visits and conversations with other plant operators, their interest turned toward the AquaDisk cloth media filter. The Plant Superintendent decided to learn more about cloth media filtration technology so he attended an Aqua-Aerobic technical seminar.

Subsequently, the AquaDisk filter became the best choice for the expansion. Its small footprint and ability to expand without adding more equipment were regarded as significant advantages since the plant had limited available land space.



Two 8-disk AquaDisk filter units were installed in August of 1999, each unit having the capability to expand to a 12-disk filter within the same footprint. This capability will accommodate Cumming's expected future growth by increasing flow capacity to 6.0 MGD. Both filter tanks are partially submerged (as shown in the photo above) to allow effluent from the secondary clarifiers to flow by gravity to the filters' inlets.



PRODUCTS

Aqua-Jet®
Surface Aerator

Aqua-Jet II®
Contained Flow Aerator

AquaABF®
Automatic Backwash Filter

MixAir®
Aeration System

AquaDDM®
Direct Drive Mixer-Blender

AquaSBR®
Sequencing Batch Reactor

AquaDisk®
Cloth-Media Filter

AquaDiamond™
Cloth-Media Filter

AquaDrum™
Cloth-Media Filter

ThermoFlo®
Spray Cooler

Aqua EnduraDisc®
Fine Bubble Diffuser

Aqua EnduraTube™
Fine Bubble Diffuser

Aqua CB-12™
Coarse Bubble Diffuser

Aqua CB-24®
Coarse Bubble Diffuser

AquaMB Process™
Multiple-Barrier
Membrane System

MSBR®
Modified Sequencing
Batch Reactor

SERVICES

Process and Mechanical
Engineering

Quality Manufacturing

Aftermarket Sales &
Service

International Expertise

CONTACT US

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AQUADISK® FILTER PROCESS

Clarified effluent flows by gravity through the cloth media of the stationary hollow disks. The filtrate exits through the hollow shaft which supports the individual disks. The operation of the AquaDisk filter is depicted in the illustration below.



As solids accumulate on the surface of the media, the water level surrounding the disks rises. Once a predetermined level is reached, the disks rotate and the media surface is automatically vacuum backwashed clean. Solids settle to the bottom of the tank and are then pumped to a digester or to the plant headworks.

DESIGN CHARACTERISTICS/OPERATION

The AquaDisk filters typically run 16 hours per day but are unattended for 8 hours. The filters reduce effluent TSS, Turbidity and Phosphorous to required levels for final discharge into the Chattahoochee River Basin.

AVERAGE ANNUAL OPERATING DATA

Loading	Current Influent	Current Effluent	Permit Effluent
Avg Flow mgd	1.1	-----	-----
TSS mg/l	7.5	-----	-----
Turbidity NTU	2.25	7	20
Total P mg/l	** .35	.08	*.75

*The Phosphorous permit limit is in the process of being reduced from 0.75 mg/l to a stringent level of 0.13 mg/l. As shown in the table, Cumming is already achieving this new limit at 0.08 mg/l.

**Prior to filtration, the effluent at the secondary clarifiers, following an oxidation ditch, is treated with Poly Aluminum Chloride (PAC).

AQUADISK® FILTER ADVANTAGES:

- Higher quality effluent
- Lower backwash rates
- Tolerates extreme variations in loads
- Reuse quality effluent
- Continuous filtration during backwash
- Small footprint
- Eliminates sand media and underdrains

Operators at the Cumming plant say the AquaDisk filters run well and they are pleased with their performance. They also state that the customer service received from Aqua-Aerobic Systems has been very good.



Jim Andrews, Plant Superintendent, says, "The AquaDisk filters have always done their job. My recommendation to the City is to keep cloth media filtration as the technology of choice."