PLANT NAME/LOCATION: Smithsburg, MD WWTP (Washington County)

TYPE OF PLANT: Municipal/Domestic

DESIGN DAILY FLOW: 0.33 MGD (1249 m^3/day) **PEAK FLOW:** 1.0 MGD (3785 m^3/day)

AQUA-AEROBIC PRODUCTS: 2 AquaDisk® Filters (2-disk), Dual-basin AquaSBR® System,

NEW TREATMENT SYSTEM FOR SMITHSBURG WWTP WAS DESIGNED FOR EASY EXPANSION

In the early 1990s, the consulting firm of Buchart-Horn, Inc. was hired by the Washington County Sanitary District to provide design bidding and construction phase services for the town of Smithsburg. Smithburg's Wastewater Treatment Plant was in need of upgrading and expansion because it was out of compliance.

Originally, the County wanted to expand their existing 0.2 mgd extended air treatment system but Buchart-Horn felt an AquaSBR® system followed by AquaDisk® filters would be more cost effective. Buchart-Horn's new plant design consisted of a new control building, a submersible influent pumping station utilizing chopper pumps for raw sewage grinding, two AquaSBR basins, an effluent equalization basin, two AquaDisk filter units, and an effluent channel with UV disinfection.

The new plant was designed to facilitate future expansion. The SBR system (one basin is shown in the photo below) can be expanded from 0.33 mgd to 0.5 mgd by the addition of a third SBR reactor. Also, the capacity of the AquaDisk filters (shown in the photo to the left) can be increased to a peak flow of 1.5 mgd by adding a third filter.

The original extended air treatment tanks were converted to effluent equalization and biosolids holding tanks. A new operations facility was constructed over these tanks to house the AquaDisk filters and rotary thickener. Control of the odors from the influent pumping station and biosolids processing area is provided by means of a biofilter.

Construction of the new plant began in October 1993 and Smithburg's new wastewater treatment system went into operation in the spring of 1995.

AQUA-AEROBIC SYSTEMS, INC.

6306 N. Alpine Rd.
Loves Park, IL 61111
p 815.654-2501
f 815.654.2508
www.aqua-aerobic.com

© 2003

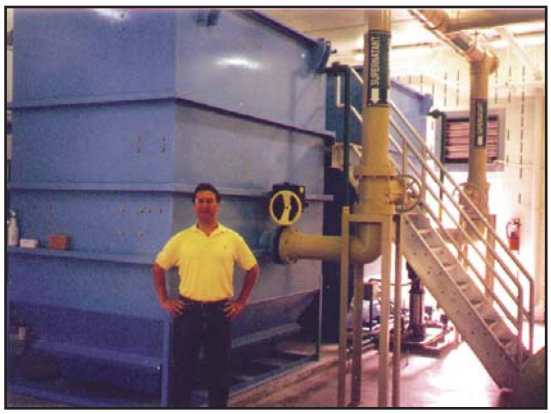
AquaDisk® Filter Process

Clarified effluent from the AquaSBR system enters the filter and flows by gravity through the cloth media of the stationary hollow disks. The filtrate exits through the hollow shaft which supports the individual disks and flows to the effluent channel following UV disinfection. 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. Heavier solids settle to the bottom of the tank and are then pumped to a digester or to the plant headworks.

Design Characteristics

The plant's average design daily flow is 0.33 mgd with a design peak flow of 1.0 mgd. The two 2-disk AquaDisk filter units can handle a flow capacity up to 1.0 mgd.

The filter units reduce TSS and NTU to required levels and pre-filter the effluent before it goes through UV treatment.



Consultant, Paul Gross, of Buchart-Horn Inc. is standing in front of Smithburg's two (2-disk) AquaDisk® filters.

Cloth Media Filter Advantages:

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

Current Process Flow