

SUCCESS STORIES

AQUA-AEROBIC SYSTEMS, INC.



FROM PRETREATMENT... TO REUSE

PLANT NAME/LOCATION: Brighton Hospital WWTP/Brighton, MI

TYPE OF PLANT: Municipal/Domestic

AVERAGE DAILY FLOW: .015 MGD (57 m³/day)

AQUA-AEROBIC PRODUCTS: (3) 3 HP AquaDDM[®] Mixers

AQUADDM[®] MIXERS ARE THE SOLUTION FOR SUCCESSFUL ANOXIC MIXING

Brighton Hospital's Wastewater Treatment Plant in Brighton, Michigan was built in 1950 and originally operated as an activated sludge package plant for treatment of its municipal wastewater. Denitrification was an influential part of the plant's treatment process.

Because the activated sludge system alone could not meet stringent Total N requirements of 5 mg/l, Brighton decided to expand its plant in 1989. It first installed a cement tank to improve settling characteristics but discovered it was not successful in the required reduction of nitrates. The need for mixers was inevitable so the plant then turned to Aqua-Aerobic Systems, Inc. to solve its denitrification problem.



A typical 3 HP AquaDDM mixer

To accommodate the facility's .015 MGD average daily flow and to efficiently decrease its nitrates, a separate basin was constructed which would strictly be used for anoxic mixing and would employ three 3 HP AquaDDM mixers. By constructing the separate basin, the plant would eliminate any type of segmentation or baffling which would limit the volume of space within the package scheme.



The three AquaDDM mixers would produce the appropriate anoxic mixing needed for proper denitrification and, at the same time, improve settling characteristics and control of filamentous growth in the basin.

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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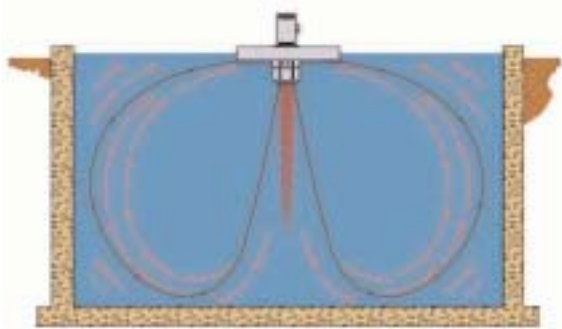
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AQUADDM® MIXER PROCESS

The AquaDDM mixer is designed to provide maximum mixing efficiency as an independent mixing source or in conjunction with aeration devices. It establishes a powerful downflow, toroidal mixing pattern that transports surface liquid downward and increases mass transfer. Flow entrainment and regenerative flow create high reactor turnover rates for efficient mixing.



The AquaDDM mixer is the ideal mixer for use in anoxic basins. It is highly effective in the conditioning of sludge mass to achieve proper denitrification and also improves settling characteristics and controls filamentous growth.

DESIGN CHARACTERISTICS

Brighton Hospital utilizes three 3 HP AquaDDM mixers in a single anoxic basin to meet its effluent Total N requirement. Its average effluent Total N is 0.3 mg/l.

Because the mixers have proven to be very efficient, the plant mounted timers on them so that they operate on an intermittent basis instead of continuously. This has saved Brighton Hospital a considerable amount in operating costs.

AQUADDM® MIXER ADVANTAGES:

- Simple physical construction makes handling easy
- Lower initial cost, and less expensive to install and maintain than gear reduced (slow speed) units
- Direct Drive design eliminates expensive and time consuming gearbox maintenance
- One-piece stainless steel shaft means no couplings and no submerged bearings
- Suitable for most basin configurations
- High efficiency mixing reduces power consumption
- Eliminates need for tank baffling or counter rotational equipment
- Eliminates short-circuiting and deadspots in the basin
- Eliminates or greatly reduces surface splashing and foaming
- Anti-erosion plate available for use in earthen basins, or basins with synthetic liners
- Directional flow option available

After the installation of the separate anoxic basin, the operators of the treatment plant noted a definite decrease in nitrates.

According to Plant Superintendent, Chuck Williams, *"The mixers have been the solution to successful denitrification. They have been working successfully for the last 11 years. I have had no problems with any of them, and maintenance is virtually none."*