

AquaMB Process™

**Multiple Barrier
Membrane System**

AquaMB Process

An Integrated System Solution



Aqua-Aerobic Systems, Inc.

AquaMB Process™

For Wastewater Treatment and Water Reuse

What is the most important factor in your decision making process when evaluating various treatment technologies for Wastewater and Water Reuse?

- Performance
- Footprint
- Flexibility
- Capital Cost
- Life Cycle Cost

As wastewater discharge requirements become more stringent, and the market for water reuse continues to grow, the need for advanced treatment technologies is in high demand. Engineers and end users are left to seek the best available technologies that produce high quality effluent at a low cost with the flexibility of meeting future objectives.

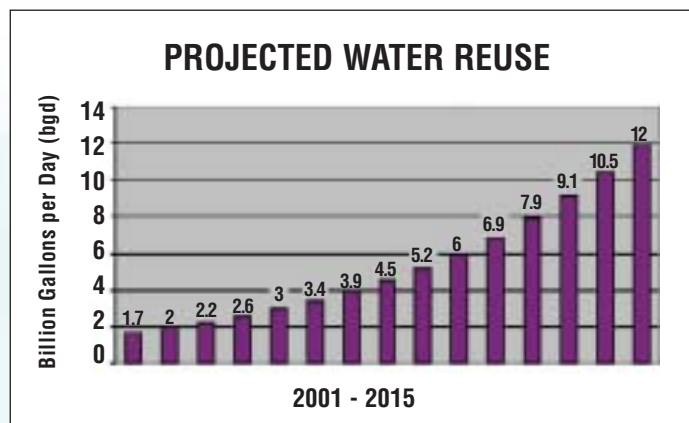
Aqua-Aerobic Systems, Inc. has met this challenge with a system solution that integrates Aqua's core expertise in biological process, filtration and controls with membrane technology. The result is the AquaMB Process™.

The AquaMB Process™ is a multiple barrier system that integrates biological treatment with dual barrier filtration consisting of cloth media and external membrane separation. It is ideal for wastewater plants that require optimum performance and flexibility at the lowest life cycle cost. Compared to traditional multi-unit processes and membrane bioreactors, the AquaMB Process™ offers numerous advantages with the added benefit of single source responsibility.

Features

- Advanced Biological Nutrient Removal
 - Separation of Aeration and Mixing
 - Quiescent Settling
- Dual Barrier Filtration
 - 10 Micron Cloth Media Filter
 - 0.1 Micron Microfiltration
- External Membranes
 - Automatic In-place Cleaning
 - Easy Access
 - Fewer Membranes Compared to Traditional Multi-Unit Processes
- Flexible Design and Operation
- Alternate Discharge Points
- Ease of Operation
- High Quality Effluent
- Fine Screening of MLSS Not Required
- Lowest Life Cycle Cost

Market Trends

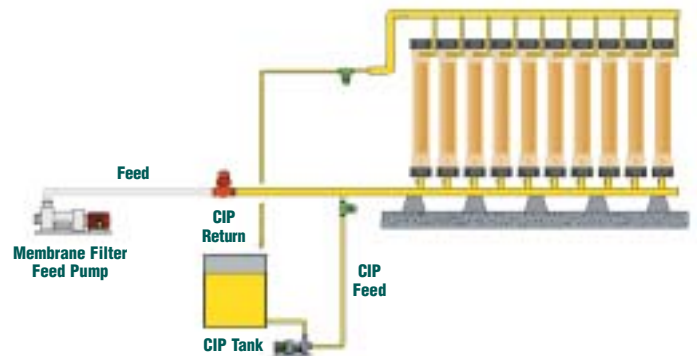


Applications

The AquaMB Process™ can be utilized for municipal and industrial wastewater treatment and discharged to impaired waterways, or where critical National Pollution Discharge Elimination Standards (NPDES), including cryptosporidium and giardia, need to be met. This system is an ideal choice for new plant construction and upgrades to existing plants. Effluent from the AquaMB Process can be used in a variety of applications including agriculture, golf course irrigation, landscape and public parks.

Clean In Place (CIP) Process

- Periodic chemical cleaning removes organics and mineral deposits.
- Fully automated with manual option.
- In-situ cleaning; removal of membranes not required.
- Membranes are compatible with a variety of cleaning chemicals.

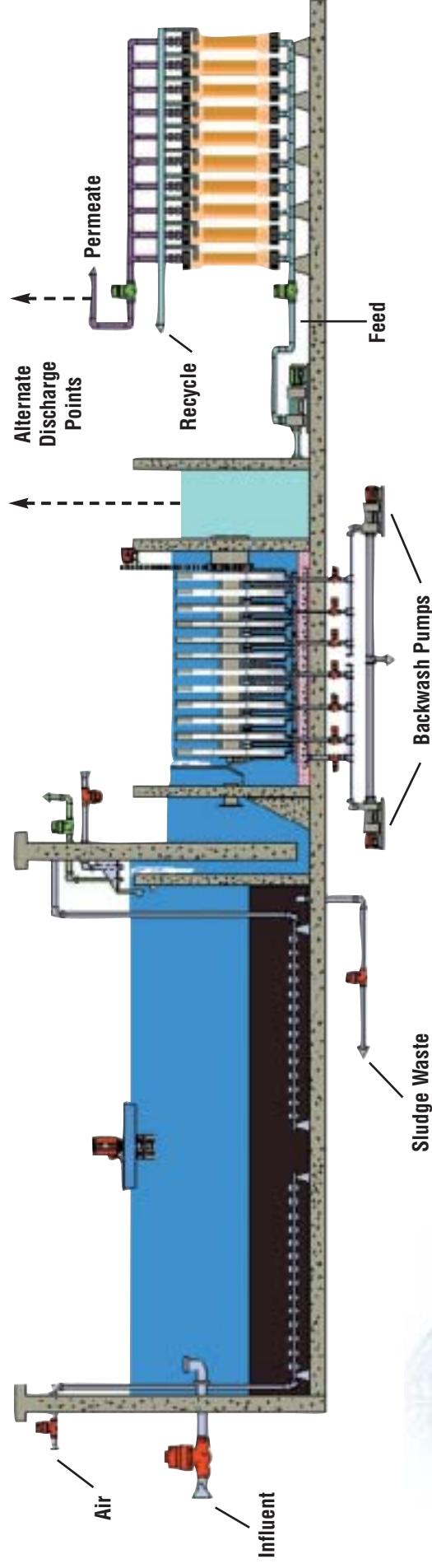


Applications



Applications

Operation of the AquaMB Process™



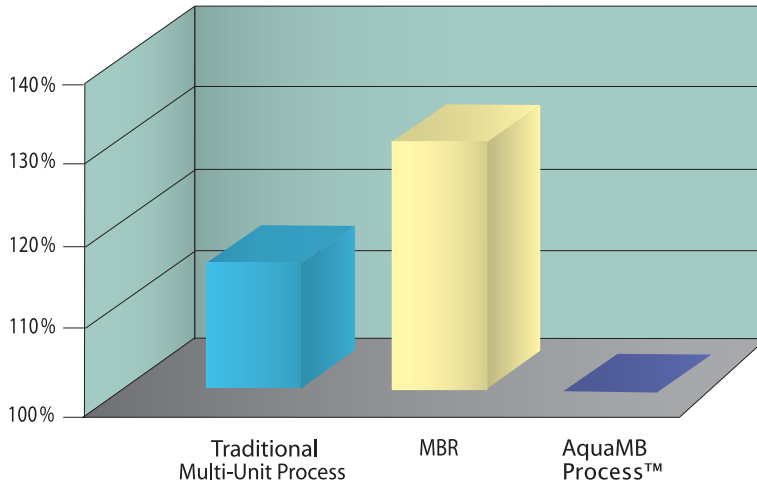
Flow enters the bioreactor where a series of independent phases promote biological treatment. Separate mixing and aeration devices allow the contents of the reactor to undergo biomass conditioning and nutrient reduction by alternating aerobic and anoxic periods. Following quiescent settling, supernatant from the reactor is transferred from the first barrier to the cloth media filter.

Inlet water passes through the 10 micron cloth media or second barrier. Filtered water is collected in the center tube where it is directed to a supply channel that feeds the external microfiltration membrane system.

The membrane system is the final barrier of the AquaMB Process™. Feed flow enters the membrane module where low positive pressure enables the fluid to permeate the membrane, excluding fine particulates down to 0.1 microns in size. Permeate from the membranes is taken directly from the top of the module and directed to final discharge or reuse application.

Aqua Capabilities

Life Cycle Cost Comparison



Technology Comparison

	Traditional Multi-Unit Process	MBR	AquaMB Process™
Performance	■	■	■
Footprint		■	☑
Flexibility	■		■
Capital Cost			■
Life Cycle Cost			■

System Performance

	Conventional Headworks	AquaMB Process™	
BOD	235	200	< 2.0 mg/l
TSS	200	170	< 2.0 mg/l
TN	40	40	< 3.0 mg/l
TP	6	6	< 0.1 mg/l
NTU	N/A	N/A	< 0.2 NTU

For more than 30 years, Aqua-Aerobic Systems has provided thousands of customers with state-of-the-art products and systems for the treatment of wastewater. Our knowledge and expertise in design and manufacturing, coupled with ongoing research and development, provides the end user with system integrated solutions for a comprehensive approach to wastewater management.



Aqua-Jet®
Surface Aerators

Aqua-Jet II®
Contained Flow Aerators

AquaABF®
Automatic Backwash Filters

Aqua MixAir™
Aeration Systems

AquaDDM®
Direct Drive Mixer-Blenders

AquaSBR®
Sequencing Batch Reactors

AquaDisk®
Cloth Media Filtration

ThermoFlo®
Surface Spray Coolers

Aqua EnduraDisc®
Fine Bubble Diffusers

Aqua EnduraTube™
Fine Bubble Diffusers

Aqua CB-12™
Coarse Bubble Diffusers

Aqua CB-24™
Coarse Bubble Diffusers

AquaMB Process™
Multiple Barrier Membrane Systems

MSBR®
Modified Sequencing Batch Reactor

DynaBlend™
Polymer Blending and Metering Systems

Aqua-Aerobic Systems, Inc.

6306 N. Alpine Rd. • P.O. Box 2026 • Rockford, IL 61130
(Phone) 815/654-2501 • (Fax) 815/654-2508 • Toll Free 877-271-1699
Email: solutions@aqua-aerobic.com • www.aqua-aerobic.com

The information contained herein relative to data, dimensions and recommendations as to size, power and assembly are for purpose of estimation only. These values should not be assumed to be universally applicable to specific design problems. Particular designs, installations and plants may call for specific requirements.

Consult Aqua-Aerobic Systems, Inc. for exact recommendations or specific needs.

Patents Apply. Patents Pending.

