

UPGRADING LAGOON TREATMENT

Headworks MBBR/IFAS Technologies
Turbo-Charge Lagoon Performance

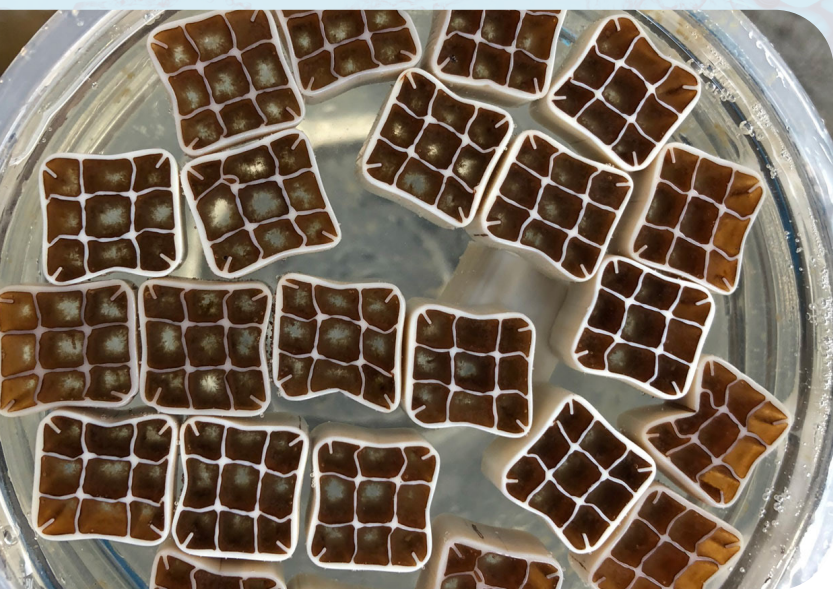
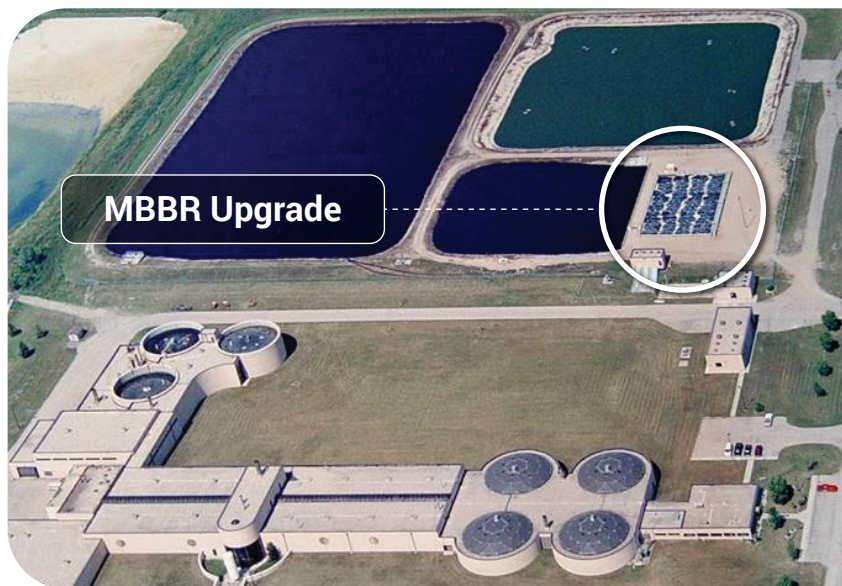
THE CHALLENGE

Aerated lagoons for wastewater treatment are typically designed and sized for BOD removal only.

Government regulations are demanding higher performance from lagoons to meet increasingly stringent effluent quality parameters, including:

- Tighter discharge limits on BOD and TSS
- Tougher restrictions on the discharge of ammonia and nitrogen to reduce the risk of eutrophication.

Most lagoons cannot meet these performance criteria without a substantial increase in footprint and infrastructure, particularly in cold-weather regions where low ambient temperatures slow nitrification to a standstill.



ENTER THE HEADWORKS INTEGRATED TREATMENT SYSTEM™

Headworks Integrated Treatment (HIT) System™ encompasses compact and completely integrated wastewater treatment processes offering both Moving Bed Biofilm Reactor (MBBR) single-pass and optional Integrated Fixed Film Activated Sludge (IFAS) return sludge technologies.

HOW YOUR LAGOON PROCESS WILL BENEFIT:

- 1 Concentrated Treatment**
Thousands of proprietary ActiveCell® biofilm carriers (media) support massive biofilm growth and protect the biofilm from shock loads, fluctuations in flows and temperatures, and toxic chemicals
- 2 Nutrient Control**
Support for high-rate nitrification and denitrification, even in extremely cold winter conditions
- 3 Small Footprint**
Excellent treatment capacity reduces hydraulic retention time (HRT) and enhances solids retention time (SRT); allows plant upgrading with minimal or no additional infrastructure
- 4 Easily Expandable**
Treatment processes allow for gradual, multi-step plant expansion by adding more media
- 5 Resilient Process**
Easy recovery from washout situations as attached growth provides an inventory of biomass
- 6 Durable**
The heart of the process, the ActiveCell® media, will last for 20 years before replacement
- 7 Low Maintenance, Simple Operation**
Self-regulating process automatically responds to fluctuations in organic loads without the need for operational adjustments
- 8 Flexible**
Multiple sizes and configurations for the process are available
- 9 Quick Installation**
Containerized and skid-mounted configurations complement customized field-erected configurations.



Moorhead Minnesota Performance Data from January to April 2010

