

CASE STUDY: Northwest Georgia Water Reclamation Center



Application:	Anaerobic Digestion
Design Flow (ADF):	41 MGD
Mixing Efficiency:	0.07 HP/1000 FT ³
Compressors:	Two (2) 60 HP Rotary Sliding Vane
Mixing Nozzles:	300
Design Engineer:	Arcadis / Schneider Electric



Short duration, intermittent bursts of compressed biogas provide uniform mixing.

Facility Upgrade Incorporates BioMix-AD™ to Minimize Maintenance and Achieve 70% Energy Savings

In 2019, Schneider Electric entered into an energy savings performance contract (ESPC) to upgrade a Water Reclamation Center in northwest Georgia, supporting the region's goal of becoming one of the most sustainable metropolitan areas in the United States.

As part of the initiative to reduce energy costs, EnviroMix's BioMix-AD was selected to improve digestion performance and efficiency by replacing aging equipment with an energy efficient mixing solution. **BioMix-AD replaced unconfined gas mixing in one anaerobic digester and draft tube mechanical mixing in a second anaerobic digester.**

The existing equipment, that was approaching the end of its life cycle, was both inefficient to operate and intensive to maintain. Upgrading to BioMix-AD represents a major improvement that will drastically reduce the long-term O&M costs at this facility.

Energy savings of 70% are projected through implementation of BioMix-AD versus unconfined gas mixing and mechanical mixing.



ENERGY EFFICIENCY

**Unequaled
mixing efficiency**
of less than
0.1 hp/1000 ft³



STRAIGHTFORWARD OPERATION

Non-clogging,
maintenance-free
components
in the tank



PROCESS OPTIMIZATION

Complete
tank mixing with
90%+ active
volume



UNPARALLELED FLEXIBILITY

Ideal for conical tank
bottom
configurations,
thereby eliminating
dead zones



Valve Modules control the firing of compressed digester gas to uniformly mix the digester.



Variable speed duplex biogas compressor package matches system demand.

BioMix-AD is projected to provide energy savings of 70% versus unconfined gas mixing and mechanical mixing.

BioMix-AD was selected as the best anaerobic digestion technology based on its numerous benefits of energy efficiency, reduced maintenance, complete mixing, greater biogas production, and improved sludge digestion.

BioMix-AD differs from piston bubble, draft tube, lance, and other anaerobic digester gas mixing systems. These older mixing technologies generally include the introduction of low-pressure biogas in a very limited number of locations within the tank, thus providing ineffectual mixing. BioMix-AD harnesses the power of high-pressure biogas, intermittently and sequentially fired in short bursts, to generate large bubbles through nozzles distributed uniformly across the tank's entire floor. The high-pressure, evenly dispersed mixing energy results in highly effective and efficient bottom-up mixing that yields rapid turnover, producing 90%+ active volume.

The BioMix-AD control system utilizes four mixing parameters (pressure, sequence, duration, and frequency) that are set for a specific sludge concentration and tank geometry while offering the flexibility to adjust the mixing intensity with changing sludge characteristics.

Thanks to this facility upgrade — made possible through an ESPC — the officials in this region of Georgia are preparing for growth while making progress toward becoming one of the top ten most sustainable cities in the country.



Contact sales@enviro-mix.com today to discuss the ways EnviroMix can optimize your mixing solutions.