CASE STUDY:

Albertville, Alabama
Eastside Wastewater Treatment Plant

EnviroMix

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Application:	Aerobic Sludge Digestion
Design Flow (ADF):	11.5 MGD (avg daily flow of 6.0 MGD)
Mixing Efficiency:	0.12 BHP/1,000 FT^3
Compressors:	One (1) 35 HP Atlas Copco
Blowers:	One (1) duty/One (1) standby 125 HP PD blowers
Design Engineer:	Krebs Engineering, Inc.

De-coupling aeration from mixing optimizes efficiency and process control.

EnviroMix's BioCycle-D Process Delivers Low Maintenance Aerobic Digestion

Owned by the Municipal Utilities Board (MUB), the Eastside Wastewater Treatment Plant in Albertville, Alabama, handles an average daily flow of about 6.0 MGD and serves approximately 20,000 residential customers. In summer 2024, the plant completed a digestion improvements project which included the conversion of two existing anaerobic digesters into aerobic digesters.

Prior to the upgrade, Eastside was operating two parallel solids lines — one with aerobic digestion and the other with anaerobic digestion. The contents of the aerobic and anaerobic digesters were blended, sent through a sludge dryer, and ultimately land applied as Class A biosolids.

After comparing BioCycle-D Optimized Aerobic Digestion Process with a conventional design, the MUB and design engineer, Krebs Engineering, selected BioCycle-D for its energy efficiency and straightforward operation.

Compared to the conventional approach, BioCycle-D is projected to deliver $90,000 annually in energy savings. Additionally, the technology reduces operator demands by using instrumentation to adjust the aerobic and anoxic cycle durations based on real-time demands.

ENERGY EFFICIENCY

$90,000 annual savings versus traditional diffused aeration design approach

STRAIGHTFORWARD OPERATION

Automatically adjusts cycle based on real-time demands

Minimal, localized maintenance

PROCESS OPTIMIZATION

Precise process control improves volatile solids destruction and sludge dewaterability

UNPARALLELED FLEXIBILITY

Compatible with any tank geometry

Headers conform to the slope of the tank floor, eliminating "dead spots"

> "With BioCycle-D, there is less hands-on, everyday housekeeping and maintenance, less equipment that we have to monitor and maintain."
>
> David Gilbert,
> WWTP Assistant Manager

The MUB staff installed the system themselves with engineering support from EnviroMix, making the overall project more economical. The new process has simplified operations and reduced maintenance. Now, all sludge goes through the aerobic digesters, then through the sludge dryer and on to land application. Anaerobic digestion is no longer utilized.

"I really can't say anything bad about it. The ease of operation in the digestion process — going from anaerobic to aerobic — it simplified things." David Gilbert, WWTP Assistant Manager, explained. "It made it safer with less to worry about… we had a lot of small parts, pieces, and pumps and constantly recirculated sludge in that old anaerobic digester that we don't have to have to deal with now. So, we're pleased with that."

By decoupling aeration from mixing, BioCycle-D operates on the principle of alternating aerobic and anoxic conditions to optimize digestion and save energy. Through instrument feedback, the controller automatically transitions the cycles from aerobic for volatile solids destruction to anoxic/anaerobic for facilitating denitrification, alkalinity recovery, and energy savings.

The BioCycle-D process has significantly reduced the maintenance burden on the plant. Gilbert stated, "With BioCycle-D, there is less hands-on, everyday housekeeping and maintenance, less equipment that we have to monitor and maintain."

Compressed gas mixing nozzles are interlaced with aeration equipment.

The blowers, compressor system, and receiver tank for the aerobic digesters are easily accessible and protected under a canopy.

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