

# CASE STUDY: Mount Pleasant, South Carolina, Center Street WWTP



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<b>Application:</b>	Flow Equalization and Anoxic Mixing
<b>Design Flow (ADF):</b>	3.7 MGD
<b>Mixing Efficiency:</b>	≈ 0.13 HP/1000 FT <sup>3</sup>
<b>Compressors:</b>	One (1) 15 HP Rotary Screw
<b>Mixing Nozzles:</b>	140
<b>Design Engineer:</b>	Black & Veatch

## Mount Pleasant WWTP Gains Enhanced Treatment Capacity & GPR funding with BioMix™ system

The Center Street WWTP in Mount Pleasant, SC, was comprehensively upgraded to provide improved treatment and increased capacity in 2014. BioMix Compressed Gas Mixing technology was an integral part of the plant upgrade, and it replaced inefficient positive displacement blowers and coarse bubble aerated mixing in the flow equalization basin. BioMix was also installed to provide anoxic mixing in two biological nutrient removal selector basins which were converted from primary clarifiers.

The project was funded through South Carolina’s State Revolving Fund (SRF) program, and the work related to the design and installation of BioMix in the flow equalization and anoxic selector basins qualified for Green Project Reserve (GPR) funding.

Black & Veatch, the engineering firm on the project, submitted a GPR Business Case to South Carolina’s Department of Health and Environmental Control that provided a cost/benefit analysis indicating the expected “green” benefits associated with the upgrade including BioMix. The case indicated a **70% decrease in the power demand versus alternative mixing technology** and highlighted the operational benefits of a mixing technology that requires no in-tank maintenance.



Nozzle headers are custom designed to avoid tank obstructions.



### ENERGY EFFICIENCY

**70% decrease in power demand** versus traditional mixing technology



### STRAIGHTFORWARD OPERATION

No in-tank moving or wearing parts  
Non-clog, maintenance free performance



### PROCESS OPTIMIZATION

Operator-adjustable firing parameters  
Promotion of optimal conditions for BNR processes



### UNPARALLELED FLEXIBILITY

No low-level limitations – ability to mix at any depth  
Compatible with any tank geometry or configuration



*Concentric rings of nozzle headers:  
Nozzles follow the slope of the tank  
floor.*



*Short duration, sequential bursts of compressed air uniformly  
mix the tank contents.*

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Efficiency means little if the system fails to perform its intended function. The projected energy efficiency was proven during field performance testing, and BioMix demonstrated a competitive advantage over conventional diffused air or mechanical mixers by providing uniform mixing throughout the basin. The BioMix system provided less than 1% coefficient of variation of solids concentration throughout the tanks.

Mount Pleasant is just one example. **Nearly all wastewater treatment facilities can benefit from lower cost of operation and maintenance as a result of a BioMix Compressed Gas Mixing System.** Energy savings across the board are significant.

In summary, BioMix Compressed Gas Mixing technology offers the following advantages:

- Bottom-up mixing in any size tanks
- Uniformly distributed mixing energy
- Improved mixing versus alternatives
- Lowest energy consumption mixing technology
- Minimized and localized maintenance requirements



Contact [sales@enviro-mix.com](mailto:sales@enviro-mix.com) today to discuss the ways EnviroMix can optimize your mixing solutions.