CASE STUDY:

Hardeeville, South Carolina, Water Reclamation Facility

EnviroMix

www.enviro-mix.com

Application:	Flow Equalization and Anoxic Mixing
Design Flow (ADF):	2.7 MGD
Mixing Efficiency:	≈ 0.09 HP/1000 FT^3
Compressors:	Three (3) 15 HP Rotary Screw
Mixing Nozzles:	246
Design Engineer:	HDR Engineers

BioMix Compressed Gas Mixing System operating during startup of anoxic selectors.

BioMix™ Compressed Gas System Selected by BJWSA for Operational Flexibility and Energy Efficiency

In 2018, the Beaufort Jasper Water and Sewer Authority (BJWSA) comprehensively upgraded the Hardeeville Water Reclamation Facility (WRF), expanding the design flow capacity from 1 to 2.7 MGD. Designed by HDR, the upgrade also enhanced the facility's nutrient removal efficiency, improving the water quality of the Savannah River.

EnviroMix's BioMix Compressed Gas Mixing System was integrated into both the flow equalization basin and the anoxic selectors of the activated sludge process. HDR and BJWSA evaluated mechanical mixing technologies, but they selected BioMix because it uniquely provided:

- Easy adaptation to changing mixing requirements.
- The lowest operating cost of any available mixing technology.
- Reduced maintenance, thanks to zero in-basin mechanical or electrical components.

The plant's operating costs will be reduced by 74% for the equalization basin and 66% for the anoxic selectors versus mechanical mixing!

ENERGY EFFICIENCY

Proven O&M savings of more than 60% compared to mechanical mixing

Unequaled mixing efficiency of 0.09 HP/1000 ft^3

STRAIGHTFORWARD OPERATION

No mechanical or electrical components in the wastewater

Non-clogging, self-cleaning components in tank

PROCESS OPTIMIZATION

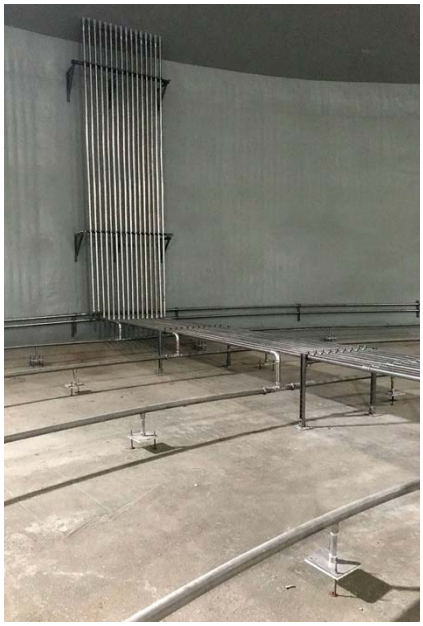
Operator-adjustable firing parameters that enable ideal mixed conditions

Promotion of optimal conditions for BNR

UNPARALLELED FLEXIBILITY

Variable mixing intensity based on operating depth

Centralized compressor system serves multiple processes



BioMix nozzle headers are designed for any tank geometry or configuration.

BioMix provides bottom-up, uniformly distributed, energy-efficient mixing.

BioMix reduced the plant's O&M costs by more than 60% and enhanced nutrient removal, improving the water quality of the Savannah River.

At the Hardeeville WRF, BioMix was integrated into two processes — the equalization basin and the activated sludge anoxic selectors — that have different hydraulic characteristics, variable operating levels, and application specific nozzle density and firing parameters.

BioMix is a unique solution in that both systems receive mixing air from a common, centralized compressor system, while mixing parameters and operating efficiency are automatically controlled by system control logic and instrumentation feedback.

The liquid level in the flow equalization basin varies, whereas the liquid level in the anoxic selectors remains constant. The BioMix control system automatically maintains a fixed air flow rate to individual processes and controls the volume of air released to the air control valves and corresponding header supply piping. This feature is utilized to optimize operating efficiency, as well as to provide increased, localized mixing intensities when operating levels drop to the low end of the expected operating range.

The Hardeeville WRF demonstrates how the BioMix Compressed Gas Mixing System provides a high degree of operational flexibility and is an energy efficient alternative that plays a key role in biological nutrient removal.

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