

CASE STUDY:
Henderson, Colorado
SACWSD Williams Monaco WWTP

Application:	BNR Anaerobic and Anoxic Mixing
Design Flow (ADF):	8 MGD
Mixing Efficiency:	≈ 0.1 HP/1000 FT ³
Compressors:	Two (2) 15 HP Rotary Screw
Mixing Nozzles:	128
Design Engineer:	Burns & McDonnell

BioMix™ Compressed Gas Mixing System Reduces O&M Costs for Williams Monaco WWTP

In 2015, South Adams County Water and Sanitary District (SACWSD) upgraded the Williams Monaco WWTP located in Henderson, Colorado, in order to improve treatment and increase capacity. The new plant design replaced the previous MBBR secondary process with an 8 MGD Integrated Fixed Film Activated Sludge (IFAS) process in an A2O configuration for biological phosphorous removal as well as nitrogen reduction.

BioMix™ Compressed Gas Mixing System was selected by SACWSD and Burns & McDonnell, the engineering firm on the project, as an integral part of the plant upgrade.

BioMix was installed in the newly constructed anaerobic and anoxic selectors, and in the existing anoxic selectors, replacing inefficient and maintenance-intensive submersible mixers.

Utilizing a duty and a standby compressor, the BioMix system allows the WWTP to maximize operational reliability. **Since the upgrade, the plant has avoided the high maintenance expense associated with the previous mechanical mixers.**



Nozzle headers are well-suited for long narrow basins.



ENERGY EFFICIENCY

50-60% or greater energy savings compared to mechanical mixing



STRAIGHTFORWARD OPERATION

No mechanical or electrical components in the wastewater

Maintenance-free in-basin equipment



PROCESS OPTIMIZATION

Complete mixing with proven negligible oxygen transfer

Guaranteed uniform mixing with onsite performance testing



UNPARALLELED FLEXIBILITY

Ideal for anaerobic, anoxic, aerobic, and deox tanks

Variable mixing intensity based on process parameters



Nozzles mounted at the tank floor maximize bottom-up mixing regime.



Uniformly spaced nozzles provide effective mixing.

Instead of requiring numerous submersible mixers, BioMix achieves efficient mixing with one centralized compressor, significantly reducing maintenance requirements.

The Williams Monaco WWTP plant upgrade incorporated EnviroMix's proprietary **Zombie™ Back-up Controller**. The Zombie provides redundancy to the PLC without the expense of a hot back-up. It is programmed to operate with factory settings for firing sequence, frequency, and duration. It monitors the main PLC heartbeat and lies dormant as long as the heartbeat is detected. In the event that the PLC heartbeat is lost, the Zombie automatically takes over to ensure uninterrupted mixing, maximizing system uptime and reliability.

Andrew Waddoups, P.E., associate environmental engineer with Burns & McDonnell, offered his review of the technology, stating, "**We are very excited about this project and the benefits EnviroMix will provide from the perspective of both energy efficiency and ease of maintenance.** The EnviroMix system is a key part of the BNR Upgrades Project."

Overall, the BioMix system has provided the Williams Monaco WWTP:

- Bottom-up mixing in a range of tank configurations
- Uniformly distributed mixing energy
- Operator-adjustable optimal mixing intensity
- Maintenance-free in-basin nozzles



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