

CASE STUDY:
Okatie, South Carolina
BJWSA Cherry Point WRF



Application:	Waste Activated Sludge Holding Tank
Design Flow (ADF):	11.25 MGD
Mixing Efficiency:	0.7 HP/1000 FT ³
Blower:	One (1) 30 HP Positive Displacement
Contractor:	BRW Construction Group, LLC
Design Engineer:	None

CAMix Product Development Strengthens Partnership and Results in 65% Energy Savings

Beaufort Jasper Water and Sewer Authority (BJWSA) provides drinking water to more than 150,000 residents, and they collect and treat wastewater across 1,420 miles. The utility operates eight water reclamation facilities (WRFs) where they recycle the wastewater safely back into the environment. EnviroMix has partnered with BJWSA since 2016, reducing energy consumption and supporting sustainability efforts.

At the Cherry Point WRF in Okatie, SC, the waste activated sludge (WAS) holding tanks were operated with a conventional coarse bubble aeration system, designed to provide enough air to completely mix the tank based on the industry standard 30 scfm/1000 ft³. As is common with most WAS holding tank applications, the process is “mixing limited,” meaning the volume of air necessary to mix the tank contents is far greater than the volume of air required to satisfy the oxygen demand.

Knowing that the utility would benefit from a more energy efficient solution, EnviroMix proposed using the Cherry Point WRF as a testing site for an innovative, intermittent aerated mixing system, and BJWSA enthusiastically agreed. Pleased with the results, BJWSA purchased the first CAMix Cyclic Aerated Mixing System.



The CAMix system in operation at the Cherry Point WRF



ENERGY EFFICIENCY

65% power savings versus continuous coarse bubble diffused aeration



STRAIGHTFORWARD OPERATION

Intuitive controls adjust the aerated mixing parameters



PROCESS OPTIMIZATION

Unmatched turndown eliminates over-aeration

Uniform mixing with performance guarantee



UNPARALLELED FLEXIBILITY

Sequential aerated mixing eliminates the need for separate aeration and mixing systems



BJWSA has been partnering with EnviroMix since 2016.

Prior to the CAMix installation at Cherry Point, BJWSA had seen the benefits of EnviroMix technologies. In 2016, EnviroMix’s BioMix Compressed Gas Mixing System was selected for upgrades at two BJWSA WRFs:

- Hardeeville WRF: BioMix was installed in a 1.5-million-gallon influent equalization tank and two anoxic selectors.
- Port Royal WRF: BioMix was installed in a 2.8-million-gallon equalization tank.

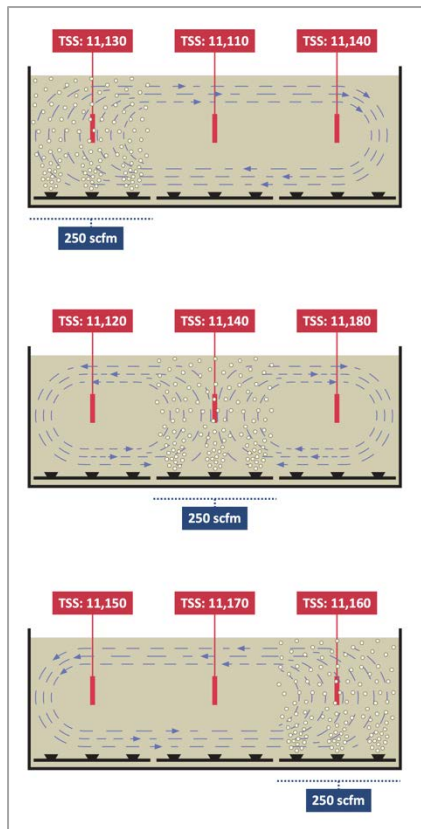
EnviroMix leveraged its proven BioMix technology to develop CAMix, which provides localized proportional air volumes to uniformly mix and aerate areas of a tank in sequence, without over-aerating (wasting energy) or compromising performance.

At Cherry Point, CAMix was shown to aerate and mix the WAS holding tank at 65% less power using blowers that were one-third the horsepower. CAMix was installed to replace the existing coarse bubble aeration system in the WAS holding tanks. To compare the two systems:

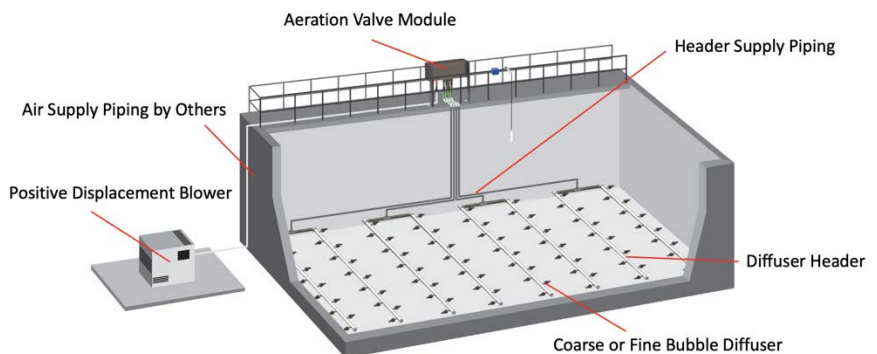
- The existing coarse bubble system provided aerated mixing at a rate of 30 scfm/1000 ft³ of tank volume or 750 cfm.
- The CAMix system provides aerated mixing at the same active grid mixing intensity of 30 scfm/1000 ft³, but at a total tank volumetric air rate of only 10 scfm/1000 ft³ or 250 cfm.

The CAMix system provides uniformly mixed conditions and satisfies the process oxygen demand at a fraction of the energy consumption of the conventional aeration system.

EnviroMix is proud to partner with BJWSA in achieving their sustainability goals.



Operational sequence of CAMix



Standard arrangement for a CAMix system



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