Food to Fuel

A CALIFORNIA CITY GEARS UP TO CONVERT FOOD WASTE AND FOG TO COMPRESSED GAS FOR VEHICLES  PAGE 62

SUSTAINABLE OPERATIONS: A twist on fuel cells  PAGE 22

TECH TALK: Turbidity testing made clear  PAGE 67

LET’S BE CLEAR: The phosphorus dilemma  PAGE 6
Daring to Be Different
INFUSION AERATION TECHNOLOGY AT A FLORIDA WASTEWATER TREATMENT PLANT IMPROVES EFFICIENCY, RAISES DO LEVELS AND REDUCES ENERGY USAGE
By Bob Fowler

Changes come slowly in the wastewater treatment industry. That’s why a recent process improvement at a Florida plant is gaining attention.

An air-infusion aerator installed in the aeration basin at the Suwannee Wastewater Treatment Plant has enabled high-capacity mixing and water movement, increased treatment efficiency, and boosted dissolved oxygen, while using significantly less energy.

The scenario began in 2015 when the Suwannee Water and Sewer District decided to completely renovate the 20-year-old plant and awarded the contract to Waterborne Madison, Florida.

SEEKING INNOVATION

“When this process began, Suwannee asked if we had any innovative ways to reduce their electric bill,” recalls Don Drummond, president of Waterborne and a veteran of some 40 years in the industry. “We had the idea to incorporate an aerator into the aeration basin. We believed it would improve process efficiency and effectiveness and do so while consuming less electricity.

“I had been working for over a year with Dean Caldwell, the president of Airmaster Aerators, and I became convinced that with their air-infusion aerators we could make a serious improvement to the process, even to the point of being a game-changer.”

The Suwannee team’s goals were challenging: reduce energy usage, increase mixing, raise DO levels, remove sludge, reduce odors, and improve overall efficiency. Overhaul of the plant began in January 2016, affecting half of the plant at a time, so the other half could continue running.

Drummond worked with Bob Bogosta, district general manager, and
A digester at the Suwannee facility.

TAKING THE LEAP

Although no one involved in the project had heard of using an aerator in this way, Drummond pushed for it to be a part of the permitting. “I had several people tell me flat out that it would not work — engineers, operators, biologists,” he says. “But I was thoroughly convinced that it would work.”

The Florida Department of Environmental Protection authorized a pilot study after Drummond gave an in-depth description. "To my knowledge, an aerator has not been used in this type of application before," Hope says. "It was enlightening. You could tell the oxygen was being transferred efficiently, and it was providing mixing as well as oxygen transfer. Looking at the lab numbers, you can see that it is much more efficient than the previous method."

Drummond adds, “We are still treating wastewater biologically. The greater efficiency of this method, using contact with dissolved oxygen rather than diffused aeration, yields better treatment for high BOD or accidental shocks to the treatment plant.”

Don Drummond

GETTING VALIDATION

Bogosta observes, “The factors that interested me originally were the energy efficiency and the oxygen transfer. It’s still early, and we really want to see the results of this long term, but so far it is looking good. Also, with the aerator there is less maintenance than with blowers or diffusers. After three months, we saw over 30 percent savings in our electric consumption. We also received our new FDEP permit and the Airmaster system was approved.”

Wanting a third party to evaluate their findings, Drummond and Caldwell invited Jamie Hope, wastewater technician with the Florida Rural Water Association, to see the application.

“We are still treating wastewater biologically. The greater efficiency of this method, using contact with dissolved oxygen rather than diffused aeration, yields better treatment for high BOD or accidental shocks to the treatment plant.”

Caldwell concludes, “We think we can make the same impact as we did in Suwannee in wastewater treatment plants all across the country.”

Aermaster: 800-257-7222

Aermaster: 800-257-7222

We are still treating wastewater biologically. The greater efficiency of this method, using contact with dissolved oxygen rather than diffused aeration, yields better treatment for high BOD or accidental shocks to the treatment plant.”

Don Drummond

Getting Validation

Bogosta observes, “The factors that interested me originally were the energy efficiency and the oxygen transfer. It’s still early, and we really want to see the results of this long term, but so far it is looking good. Also, with the aerator there is less maintenance than with blowers or diffusers. After three months, we saw over 30 percent savings in our electric consumption. We also received our new FDEP permit and the Airmaster system was approved.”

Wanting a third party to evaluate their findings, Drummond and Caldwell invited Jamie Hope, wastewater technician with the Florida Rural Water Association, to see the application.

“We are still treating wastewater biologically. The greater efficiency of this method, using contact with dissolved oxygen rather than diffused aeration, yields better treatment for high BOD or accidental shocks to the treatment plant.”

Caldwell concludes, “We think we can make the same impact as we did in Suwannee in wastewater treatment plants all across the country.”

Aermaster: 800-257-7222

We are still treating wastewater biologically. The greater efficiency of this method, using contact with dissolved oxygen rather than diffused aeration, yields better treatment for high BOD or accidental shocks to the treatment plant.”

Don Drummond

Getting Validation

Bogosta observes, “The factors that interested me originally were the energy efficiency and the oxygen transfer. It’s still early, and we really want to see the results of this long term, but so far it is looking good. Also, with the aerator there is less maintenance than with blowers or diffusers. After three months, we saw over 30 percent savings in our electric consumption. We also received our new FDEP permit and the Airmaster system was approved.”

Wanting a third party to evaluate their findings, Drummond and Caldwell invited Jamie Hope, wastewater technician with the Florida Rural Water Association, to see the application.

“We are still treating wastewater biologically. The greater efficiency of this method, using contact with dissolved oxygen rather than diffused aeration, yields better treatment for high BOD or accidental shocks to the treatment plant.”

Caldwell concludes, “We think we can make the same impact as we did in Suwannee in wastewater treatment plants all across the country.”
NEW!

INFUSION AERATION.
Technology Raises D/O Levels and Saves Energy.

Our new infusion aeration technology aerators improve treatment efficiency and provide maximum mixing, while dramatically raising the dissolved oxygen levels. Using low h.p. motors enables huge energy savings. Call us today for complete details.

Airmaster Aerator L.L.C.
888-813-3680 • www.airmasteraerator.com