

Orange Water and Sewer Authority

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Improvements at Mason Farm Wastewater Treatment Plant will reduce energy use and greenhouse gas emissions 20% to 30%

OWASA recently completed \$10.4 million of improvements at its Mason Farm Wastewater Treatment Plant (WWTP) which:

- **Will lower electricity use at the plant and related greenhouse gas emissions by 20% to 30%.** *Electricity savings are projected to be \$120,000 or more annually. (Greenhouse gas emissions occur when fossil fuel is burned to generate electricity.)*
- **Will help reduce odor** by covering 10 biological treatment tanks and adding devices to remove odor from air at the tanks.
- **Will help OWASA meet future standards for the quality of treated wastewater recycled to Morgan Creek, a tributary of Jordan Lake.**

"The work at our Mason Farm plant will reduce costs, and make our plant more environmental friendly and sustainable," said Todd Taylor, OWASA's General Manager of Operations. "The improvements in odor elimination also reflect our commitment to being a good neighbor to customers in neighborhoods around the plant."

The recent improvements are primarily financed with a 20-year no-interest loan of \$6.56 million from NC Clean Water funds. This loan will save a total of about \$1.7 million in interest compared to conventional debt (average of \$85,000 annually).

OWASA also received a Duke Energy incentive of \$168,000 to help pay for energy efficiency improvements.



Above: Ronnie Weed, Operations Supervisor at OWASA's Mason Farm Wastewater Treatment Plant, at the controls for new energy efficient equipment expected to lower electricity costs by \$120,000 or more annually.

Background information

Energy efficiency

The energy efficiencies result from installing:

- equipment called "diffusers" to release small air bubbles into wastewater in the biological treatment tanks
- new energy-efficient blowers to deliver air to the tanks, and
- more efficient mixers to suspend wastewater solids in the tanks.

(Oxygen is necessary to support the microorganisms which remove pollutants from wastewater.

Treatment Plant

The Mason Farm WWTP is on Old Mason Farm Road in southeast Chapel Hill near the NC Botanical Garden and Finley Golf Course. The WWTP treats an average of 8.3 million gallons per day. Wastewater treatment includes:

- Using settling tanks to separate solids from wastewater.
- Removing pollutants in a biological process.
- Disinfecting wastewater with ultraviolet light, which is very effective in killing pathogens.
- Pumping air into treated water before it is released into Morgan Creek to enhance water quality for fish, etc.
- Treating solids separated from wastewater by heating them and breaking them down into simpler compounds in a biological process called "digestion."

Reclaimed Water System

OWASA and the University built a reclaimed water system which went into use in April 2009. The University paid the local construction cost of almost \$15 million and pays monthly for operating and maintenance costs.

The University uses reclaimed water instead of drinking water as cooling tower make-up water, to irrigate several athletic fields and to flush toilets in some new buildings. Reclaimed water meets about 30% of the University's water demand and 10% of the overall community's water needs.

Providing reclaimed water to the University requires about 40% less energy than the pumping and treatment necessary to provide drinking water.

For more information

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