

Case Study: Tennessee Department of Environmental Conservation

Nitrogen & Phosphorus Removal with Cost Savings

One year of training and technical support demonstrated the nitrogen removal capabilities of existing wastewater treatment plants.

Contract Fee: \$85,800

Improved Nitrogen and Phosphorus Removal.

Electrical Savings of \$250,000 per year at Cookeville.

Chemical Savings of thousands of dollars per year at Athens' Oostanaula plant.



A combination of training, technical support, and professional collaboration involving regulators and wastewater treatment plant personnel was provided over a period of ten months. Tasks included: two days of classroom training, one professional seminar, two days of regulatory staff meetings, 16 plant visits, field testing equipment, on-going remote technical support (emails and telephone), and a series of reports.

Cookeville, TN

By changing day-to-day operations at a plant not designed for biological nutrient removal, Cookeville reduced total-Nitrogen to 5 mg/L (from 20+ mg/L) and reduced total-Phosphorus to an average of 1.36 mg/L (from an average of 3.38 mg/L) while providing more sustainable treatment (no chemicals, less electricity consumed and realizing projected annual savings of \$233,000).

Athens, TN

Athens' Oostanaula treatment plant continues to meet its summertime phosphorus limit but now does so without chemicals. An unused tank was converted to a sidestream fermenter. A percentage of waste activated sludge (WAS) is cycled through the fermenter and back into Oostanaula's oxidation ditch. Effluent total-phosphorus averages 0.9 mg/L with no chemical addition.

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"Grant Weaver freely shared his know-how with our operators, engineers, inspectors, and regulators with a keen understanding of the greater benefit to the water industry and the environment."



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