



Location	Middlebury, Indiana, USA
Waste type	Slaughterhouse duck waste, agricultural & food residuals
Reactor volume	3,500 m ³ (933,000 gallons)
Electrical capacity	1,200 kW _e
Startup	October 12 th , 2012 (November 7 th , 2012: first feeding)
Client	Culver Duck Farms, Inc.

Culver Duck Farms is a private company located in Middlebury (Indiana, USA) which raises and processes around 3.5 million ducks annually. To minimize their impact on the environment, Culver Duck Farms has recently started some initiatives to reduce their carbon footprint. One of these initiatives is the building of an anaerobic digester facility to treat all their duck waste ($\pm 4\,500$ ton/year or $\pm 5\,000$ short ton/year). This will not only avoid transport of these byproducts, but will also generate renewable electricity that can be used on site.

OWS assisted Culver Duck Farms in USDA REAP and US Treasury Section 1603 grant applications. OWS acted as a consultant for this project by determining the biogas potential of the different by-products generated in Culver Duck Farms' processes, and optimizing a suitable mix for anaerobic digestion. The by-products from the duck processing facility alone could not sustain a stable fermentation process. Therefore, extra by-products from agriculture and biodiesel production and other waste products from food-producing companies need to be added to the mix.

OWS provided assistance during the biological start-up of the plant and provides ongoing biological support. Because of the knowledge obtained during the lab scale tests, we were able to increase the loading rate from the beginning, and nearly all by-products from the duck processing plant could be treated in the digester only 6 weeks after the first feeding. Construction was completed in October 2012 and the plant first began producing electricity in December 2012. In addition to electricity, Culver Duck Farms will use 100% of the waste heat to offset the majority of process heat requirements for their processing plant.