WASTE MANAGEMENT PROGRAMS
COLLEGE OF AGRICULTURE & LIFE SCIENCES

NC STATE UNIVERSITY

Animal and Poultry Waste Management Center

A candidate technology of the North Carolina Agreements Project: Development of Environmentally Superior Technologies per Agreements Between the Attorney General of North Carolina and Smithfield Foods, Premium Standard Farms and Frontline Farmers

Organic Biotechnologies, LLC (ORBIT) High Solids Anaerobic Digester

This project is located at Timber Ridge Farms near Clinton, North Carolina. The centerpiece of this project is an enclosed anaerobic digester. This thermophilic, or high-temperature, digester will be used to convert the solid portion of the waste stream from a swine operation into biogas (methane and carbon dioxide). The biogas can then be used as an alternative energy source to generate electricity or heat. Waste from other waste streams, such as municipal waste, may be co-digested with swine waste solids. The residence time of material in the digester is expected to be 15 to 21 days. ORBIT expects to achieve a conversion rate of at least 75 percent of the organic carbon into biogas. The balance of the organic carbon and the bulk of all other nutrients produce an effluent sludge. The sludge is then processed using a screw press to separate the liquid fraction from the solid fraction. The liquid fraction will be used to make a value-added liquid fertilizer. This project has been paired with the Super Soil Systems project, which will provide the swine waste solids to be digested. The solid fraction of the sludge that remains after digestion will be used by Super Soil Systems to make a value-added soil amendment.

Digester Site

ORBIT High Solids Anaerobic Digester (continued)

Technology Evaluation

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Digester Components Prior to Assembly