

## Individual Industrial Wastewater Application

*The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.*

Vanguard Organics, LLC (CN600000000) plans to develop Franklin AD 1 (RN10000000000). Vanguard Organics, LLC develops, builds, owns and operates anaerobic digesters on dairy farms to produce renewable energy and other agricultural by-products such as liquid fertilizer and soil amendments. The facility will be located at 417 Liere LN, near the City of Franklin, Robertson County, Texas 77856.

This permit will not authorize a discharge of pollutants into waters of the state.

Anaerobic digestion is a process by which organic material, such as cow manure and food waste, is broken down by microbes in an enclosed environment to produce biogas. By combining food waste and manure, a smaller volume of manure can create enough biogas to make the system viable. Each digester tank will receive material from the hydrolysis tanks on a regular schedule. Materials transferred from the hydrolysis tanks to the digester tanks will include a mix of feedstock and manure. Once material is transferred into the digestion tank, it will be homogenized using mixers. In the digester the homogenous mix of manure and food waste is heated and resides in the tank for several days. While in the tanks, microbes break down the mixture in an anaerobic environment, resulting in the production of biogas, which is a combination of methane, carbon dioxide, hydrogen gas, and water vapor. The biogas that is collected in the headspace of the digesters, will be routed through a gas conditioning, and upgrading system to remove impurities. This will result in pipeline quality natural gas. Digestate is the effluent discharged from the digesters. The digester tanks have a finite capacity, and as more organic waste, manure, or food waste, is added, the processed material within the tanks needs to be removed. The removal of digestate from the digesters will occur throughout the day as needed to reduce the volume of material within the digester tanks. This material may be processed through a nutrient management system and result in a nutrient rich liquid which is stored in an earthen storage lagoon onsite which can be used for land application.

The digestate from the digestion tanks will be routed through a screw press to remove fibrous and large materials. After the screw press, the digestate would then be pumped through a filtration system. The VSEP filtration system uses reverse osmosis filtration that concentrates all solids, both suspended and dissolved. The VSEP currently planned can remove up to 98% of the organic matter (BOD) and 95% of the ammonia from the digestate effluent, depending on the land application requirements of each project. After the VSEP filtration system, the nutrient rich liquid is pumped to an earthen storage lagoon. This liquid from the storage lagoon is then routed to the land application fields.

