CLOVER HILL DAIRY – CAMPBELLSPORT, WI

SYSTEM DESIGN

In 2006, Clover Hill Dairy installed a DVO Two-Stage Mixed Plug Flow™ digester to treat manure that is continuously scraped and collected each day. The anaerobic digester system is a U-shaped concrete tank with a fixed concrete cover where manure and wastewater enter and exit from the same end of the digester. The design theoretically allows for future expansion on the enclosed end of the digester. A central wall houses hot water piping that heats the manure. The digester operates at a temperature of approximately 100°F and has a hydraulic retention time of 20 days.

Biogas is treated and run through two engine generator sets with a total electrical capacity of 480 kW. The farm owns the carbon credits associated with electricity production. Heat from the water jacket and engine exhaust is collected and used to heat the digester, milk house, parlor, and feed lanes.

The farm uses a screw press separator to generate approximately 140 tons of solids each week. The farm uses the majority of the solids for on farm bedding and field application, and sells the rest to another dairy for bedding.

PROJECT BENEFITS

- Electricity that meets the power needs of 400 homes daily
- Ownership of carbon credits for the production of energy
- Odor reduction
- A pathogen-free bedding product for cattle
- Revenue from sale of excess bedding

Photo: Energy Center of Wisconsin

- **Population Feeding Digester:** 2,000
- **Baseline System:** Storage Lagoon
- **Digester Type:** Two-Stage Mixed Plug Flow™
- **System Designer:** DVO, Inc.
- **Biogas Generation:** 115,500 ft^3/day
- **Biogas Use:** Cogeneration
- **Generating Capacity:** 480 kW
- **Receiving Utility:** WE Energies, Inc.
- **Project Funding:** USDA