



## SUNRISE DAIRY (FORMERLY SURING COMMUNITY DAIRY) – SURING, WI

### SYSTEM DESIGN

After traveling to Denmark and Germany to see how different anaerobic digestion systems worked, the owners of Sunrise Dairy (formerly Suring Community Dairy) decided to install a complete mix digester. The above ground, stainless steel tank has a dual membrane flexible cover and rests on a concrete pad. It operates in the mesophilic range with a target temperature of 100°F.

Biogas is treated through a passive hydrogen sulfide removal system and chilling unit for condensate removal. It is then fed into a dual fuel engine generator set which also uses 20 percent diesel and is synchronous (i.e., can run in standalone mode). The system produces approximately two million kilowatt hours (kWh) of electricity each year that is sold to Wisconsin Public Service Corporation under a sell all agreement.

Manure, wastewater, straw bedding, and small amounts of footbath water are fed into the digester and do not require pre-treating. The farm feeds manure into the digester every two hours. Heat captured from the engine and exhaust is used to heat the digester and the shop building. One energy and cost saving measure they are implementing is to reroute effluent from the screw press back into the reception pit for pre-heating. This helps lower the energy needed to heat the manure up to digester target temperature by capturing heat from the effluent that would otherwise be wasted.

Post-digestion solids are separated using a WEDA brand screw press solids separator and a Press Technologies, Inc. (PTI) model. The farm uses the solids for bedding for the cows and the bioliquids are used to fertilize some of their crops. Some of the solids are used by neighbors, local landscapers, and gardeners.

### PROJECT BENEFITS

- Digester provides some heating and all electrical needs for the dairy in addition to revenue from electricity sales
- Using biosolids as bedding saves the farm the cost of purchasing bedding
- Leftover bioliquid is used for fertilizer on the farm's alfalfa and corn crops



Photo: Focus on Energy

*"My biggest surprise has been how much the bacteria in the system and the cows are parallel in their maintenance... both need to be comfortable with the exact right conditions to work at peak level."*

—Raymond Leicht

Secretary Treasurer, Sunrise Dairy  
(formerly Suring Community Dairy)

quoted in Focus on Energy Press Release (July 2006)

- **Population Feeding Digester:** 1,075
- **Baseline System:** Storage Lagoon
- **Digester Type:** Complete Mix
- **System Designer:** American Biogas Company, Inc.
- **Biogas Use:** Cogeneration
- **Generating Capacity:** 250 kW
- **Receiving Utility:** Wisconsin Public Service Corp.
- **Project Funding:** USDA