

ANAEROBIC DIGESTION

COMBINED HEAT AND POWER

Sunny Knoll Farm

Perry, Wyoming County, NY



Digester and influent pit building



Used restaurant grease, added to the influent pit weekly with the goal of reducing foaming



Engine-generator set

Digester type	Plug-Flow
Digester designer	RCM Digesters, Inc.
Influent	Raw manure
Stall bedding material	Sawdust
Number of cows	1,400 dairy cows
Rumensin [®] usage	Yes; all lactating cows
Dimensions (W,L,H)	34'-4" x 190'-8" x 16'
Cover material	Soft top (Hypalon 45)
Design temperature	100°F
Estimated total loading rate	43,000 gallons per day
Treatment Volume	780,000 gallons
Estimated hydraulic retention time	18 days
Solid-Liquid Separator	No
Biogas utilization	Caterpillar engine with 230-kW generator
Carbon Credits sold/accumulated	No
Monitoring results to date	No; Currently being monitored with ASERTTI protocol

Farm Background

- > Sunny Knoll Farms, Inc. is a third generation family farm owned by Don Butler and his three sons, Eric, Scott and Jason
- > Sunny Knoll's primary reason for choosing anaerobic digestion was to offset electrical power costs
- > Construction of a plug-flow digester started in August 2005 and was completed in July 2006
- > The farm does not have, and does not plan to install a solid-liquid separator
- > Digested manure is spread on a land base of 2,000 acres, used to raise forage crops

Lessons Learned

- > Entire anaerobic digester system should be completely designed and laid out prior to starting construction
- > The electrical components of the system need to be well designed
- > Engineering design was an ongoing process that resulted in construction delays that could have been avoided.
- > Repeated delay and mistakes in ordering of parts and materials causes delays and disrupts the construction process
- > Farms should be cognizant to choose reliable companies to furnish parts

