

ANAEROBIC DIGESTION

COMBINED HEAT AND POWER

New Hope View Farm

Homer, Cortland County, NY



Digester with SlurryStore in background



Sampling digester effluent



Gas utilization building

Digester type	Plug-Flow
Digester designer	RCM Digesters, Inc.
Influent	Raw manure
Stall bedding material	Sawdust
Number of cows	850
Rumensin [®] usage	Not currently
Dimensions (W,L,H)	30'x118'x19'
Cover material	Soft top (Hypalon 45)
Design temperature	100°F
Estimated total loading rate	25,000 gallons per day
Treatment volume	503,000 gallons
Estimated hydraulic retention time	20 days
Solid-liquid separator	Not currently in use
Biogas utilization	Biogas boiler, microturbine (70-kW)
Carbon credits	No
Monitoring results to date	Yes; see Case Study AD-11

Farm Background

The New Hope View Farm, formerly known as Dairy Development International (DDI) changed hands in February of 2007.

- Farmstead odor reduction was the primary reason for digester construction in 2001
- Biogas is first processed by a scrubber to significantly reduce hydrogen sulfide (H₂S) before being used to fire a 70-kW microturbine
- An arrangement is in place between the farm and Ingersoll-Rand; the farm sells conditioned biogas to Ingersoll-Rand and buys back the electricity

Lessons Learned

- The digester should be located close to the gas utilization equipment, to avoid pumping hot water long distance; this results in an unnecessary waste of heat and energy.
- Air locks in hot water digester heat pipes can hinder maintenance of AD target temperature of 100°F.
- Control of electricity production is difficult with a microturbine; the amount of electricity produced correlates with the baseline gas production, so the microturbine is fully running or off
- Foaming can occur when: the diet of the cows change, the temperature of the digester changes or other organic additions are made to the digester. Spraying water over the foam can control it.

