

## Wild Rose Farm's Anaerobic Digester

By William Katra

April 11, 2009

As our vehicle turned into the Wild Rose Farm, after following curvy county roads for some 20 minutes out of Viroqua, Wisconsin, I did not know what to expect. Jim Poehling, Phil Hooker and I were about to visit the three-year old Aerobic Digester and the methane- powered generator that Dairyland Power Cooperative uses to provide electricity for some 600 local residences.

We saw much more than what I had imagined. To begin with, here was the most efficient milk producing farm I had ever seen: 420,000 gallons per week come from three milkings daily from 850 (of the 1045 resident) cows. The milking building was pure efficiency and mechanization, with two employees handling all the related milking chores (sanitizing utters, placing suction cups, etc.). Maybe a third employee was somewhere to the rear of the building helping steer the cows in; but maybe not: the cows were so well trained that no human agency seemed involved as—every ten minutes or so-- the line of twenty cows marched in and took their rightful positions for milking.

Then there were three other huge buildings situated in a row on a gentle hill where the cows spend the rest of their day feeding and farting and defecating. This last operation is the most relevant for the anaerobic digester. Again, ingenious design was evident. When one of the perhaps 24 lines of cows is herded out to be milked, a golf-cart type of vehicle outfitted with a six-foot squeegee pushes the manure 200 feet down the 3-degree gradient to the sewer collector that runs under the middle of the building. Gravity carries this wet slop just outside where the digester awaits.

After this slop is mixed with spent cooking oil—a truck-load of the latter arrives every other day from the MacDonal'd's Corporation--it and the proper mixture of bacteria are pumped into the huge, 50-foot high circular digester just feet away. Inside this there is a giant mixer arm that slowly agitates the slop, which is heated to the proper temperature via the stainless steel piping that lines the inside walls. One component of this complex system feeds of another: the water that circulates is itself heated by the fumes given off by the generator just feet away.

When the digester is properly functioning, methane is given off in the anaerobic process, as the manure is chemically broken down. Pipes carry the methane from the top of the digester down to the generator at its feet. Dairyland's 1200 hp motor is as large as those moving Amtrak's trains along the CP tracks linking La Crosse to urban centers east and west. It is firing 24 hours a day, producing enough electricity for 600 typical residences.

\*\*And the swill? A now-spent liquid bi-product is pumped from the top of the digester to the 100-yard diameter lagoon just on the other side of the milking building, where it awaits for fall, when it, in turn, will be pumped in 4" hoses up to three miles away and injected into fields where Wild Rose Farm will grow next year's corn and hay. From the bottom of the digester comes the spent solid portion, that will eventually be carted away by truck, bagged, and sold for your vegetable garden and mine.

And the economics of this whole operation? Come to the Clean Energy Coalition's public forum on Thursday, April 30, 7:00 p.m. Ho-Chunk Building, Downtown La Crosse to find out about this.

[<billkatra@hotmail.com>](mailto:billkatra@hotmail.com)