

REPORT ON THE TOUR OF SHELAND FARM'S METHANE DIGESTER

October 20, 2009

A group from the Town of Hounsfield toured Shelmidine Farms' Methane Digester facility to gain first-hand knowledge of how the digester works, and to gather information for our proposed local residential energy zoning law. The facility tour was hosted by Doug Shelmidine, a partner in Sheland Farms, and was organized by Jay Matteson, Jefferson County Agricultural Coordinator. Attending from the Town were members of the Residential Energy Committee:

Don Dimonda, Christine Eggleston, and Sharry Rogers. Jean Rogers, Assessor for the Town of Hounsfield, also participated in the tour, as well as Brooke McDowell (Hounsfield ZBA member) and her husband Lee.



Sheland Farms is a modern business, milking about 600 cows daily. There are other, non-milking livestock of roughly the same number; most of this stock are maiden heifers and are not counted in the milking tally, though they do figure in the total number of livestock on the farm. When the livestock are counted together, and viewed as we saw them, one gets a sense of the volume of the 'stream' of raw material available for producing composted manure.

The digester facility is housed in a building about 50 x 75 feet. Divided roughly in half, one room inside the building is devoted to the compostor and a conveyor that moves the processed compost. The other half of the building is designated for the pumps and piping needed to move the raw manure through the digester tank, to 'stir' the material inside the tank, and carry it into the system for processing. The tank, which resembles a Harvestore silo coated with insulation, is located outside the building. There is a methane flare mechanism in case too much gas builds up in the system. Most of the piping for bringing the manure out of the barns and into the holding tanks is underground.



Doug Shelmidine explained the digester process to us in very basic terms and described some of the system's benefits. The process creates high-quality fertilizer, generates electrical power for use on the farm (excess electricity goes into the power grid), and reduces greenhouse gases by processing the methane. The dry product that remains after the composting process can be used for the cows as bedding material under a clean straw layer. The remaining liquids, stored in an external holding pond, are used to fertilize the fields in fall.



The digester is an expensive investment, costing about \$1.4 million to install. As a demonstration project, Sheland's facility was funded by a combination of sources: NYSERDA, Seimens, Sheland Farms, and additional grant sources.

What we took away from the field trip:

Digester Technology requires substantial investment among all parties: Government, private, and industry. Without the support of Seimens and NYSERDA, this project would be too much of a financial burden for one farm to undertake. However, this could become a way to handle the manure stream, reduce the odors associated with farming, and reduce methane in the atmosphere if a project were undertaken by several farms, on something of a regional level. The energy produced is a benefit; according to Doug Shelmidine, Sheland Farms could produce enough electricity to light the community of Belleville. At the current operating level, the system produces enough power to cover about 75% of the farm's needs. —CE

It was nice to learn about digesters first hand. It is very evident farming has changed dramatically, and most of us remember how it was in the past. Small farms are fast fading because of the changing practices that smaller farms cannot afford — I knew that digesters were expensive but had no idea just how much!!! It's not just the digester, but other concepts, such as the fact that farmers have to have more animals and therefore more machinery and land to bring in enough income to sustain a family. Counting the cars and trucks parked in Sheland's lot, there are many farmhands helping with chores each day. That is part of the changing world; we all should be open to new concepts. —SR