ANAEROBIC DIGESTION

HARD TOP SIDE-BY-SIDE DIGESTER
Noblehurst Dairy, York, Livingston County

OBJECTIVES

- Odor control for the farm
- Combined heat and power generation

DESCRIPTION OF SYSTEM

The Noblehurst plug-flow digester is a partitioned, rectangular, in-ground concrete tank (120' x 50' x 16' deep). Manure is scraped from each barn and sent to a central flow channel. It then flows east to a 28,000 gal. collection pit where it is mixed with digested effluent to obtain 10% dry matter (DM) content and then pumped to the influent manifold of the digester. The flow is distributed equally between the two parallel digester chambers, twice a day.

With 1,100 milkers plus 200 heifers onsite, the manure production is estimated to be 28,000 gal/day or 10,220,000 gal/year. The retention time (RT) of the digester is about 25 days.

The Noblehurst digester has a flat concrete cover made of pre-stressed concrete panels covered with concrete, insulation and earth. The digester interior was sealed to minimize biogas leakage, and insulated to maintain temperature. To supply the engine generator with biogas, without a gas compression system, the digester is maintained at 15" of water column pressure.

A sediment trap with suction pump access inside the digester removes grit.

When the separator building is completed, manure will be pumped from the effluent chamber to an elevated screw-press separator. The separated solids will be composted for on-farm use, or sold offsite. The separated liquids will flow to the concrete storage by gravity.