

## Initial Capital Costs

|  | Cost (\$)        |
|--|------------------|
| <b>Digester</b>  |                  |
| -Site Work   | 15,000           |
| -Engineering design                                      | 200,000          |
| -Digester (Including cover, concrete, and heating pipes) | 445,500          |
| -Misc.   | 100,000          |
| <b>Subtotal</b>  | <b>760,000</b>   |
| <b>Energy conversion</b>                                 |                  |
| -Engine-generator set                                    | 146,800          |
| -Electrical wiring and control systems and plumbing      | 60,000           |
| -Biogas utilization building                             | 232,917          |
| <b>Subtotal</b>  | <b>439,717</b>   |
| <b>TOTAL</b>   | <b>1,199,717</b> |



AD influent pit



H2S testing next to gas conditioning system



Obtaining an influent sample

The farm received **FUNDING** from:

New York State Energy Research and Development Authority (NYSERDA), the United States Department of Agriculture (USDA) Rural Development Program, and New York State Environmental Protection Fund, totalling \$1,160,000. The farm invested about \$450,000 of its own money into the project.

## Lessons Learned

- > The farm received very different recommendations and opinions from the design team at Siemens.
- > It was found that the flare would not function properly at 6" of water column pressure, thus, the decision was made to increase the pressure to 10" of water column pressure and emissions of raw biogas have been eliminated.
- > Operating the Roto-mix system for 20 minutes of a 30 minute cycle resulted in a build-up of two feet of crust on the top layer within the digester. The Roto-mix system is now run for 2 hours on a 4 hour cycle, and this is working well.

## For more information

Download and print the Sheland Farms Case Study at:

<http://www.manuremanagement.cornell.edu/HTMLs/CaseStudies.htm>

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