

# DEN DULK DAIRY FARM EPC: BIOGAS RAVENNA RAVENNA, MICHIGAN



## Project Description

A partnership team of Den Dulk Dairy Farm and Grand Valley State University's Michigan Alternative and Renewable Energy Center in Muskegon, contracted with Reynolds and its affiliates to design and build a 250 KW biogas facility. This project is a demonstration of the versatile application of this sustainable renewable energy system. A single dairy farm manages this passive technology to produce energy and remove potentially intrusive manure effects from the environment.

### Plant Components

- CSTR Digester features a continuous stir-tank reactor that mixes the heated manure to break it down thus creating methane gas.
- H<sub>2</sub>S Scrubber, manufactured by S&H Umwelt engineering Vertriebs GmbH. Uses Bio-trickling technology for low maintenance const.
- Capstone CR30 Microturbine produces 30 KW of continues power and 45 KW of thermal energy.
- CR30 can accept H<sub>2</sub>S levels as high as 70,000 parts per million
- Biogas from the digester facility also powers an 80-kW combined heat and power (CHP) reciprocating engine.
- 2.8 MMBTU Boiler, Mixing Tank, Gasholder, Biogas Flare

## At a Glance

Contract Amount:  
\$1.7 M

Completion Date:  
January 1, 2008

Owner:  
Den Dulk Dairy Farm

Engineer:  
Bernhard Schulz, MSc. Eng.  
and Sidock Group, Inc.