



# Case Study

## Anaerobic/Aerobic SBEACR Treatment System

### Partners in Pork – Afton Co-Op

John Lichthardt  
Production Manager  
Afton, IA



### ENGINEERING DESIGN

This 5,000-head sow unit is a wholly owned facility of the Afton, Iowa Co-Op. It uses one of the most unique and advanced systems we have encountered. The buildings have rechargeable pull plug pits feeding a 2.3-million gallon Slurry store and a second 450,000-gallon Slurry store equipped with bottom aeration. The aeration tank is called a SBEACR (Single Basin Extended Aeration Cyclical Reactor).

### PITCHARGER WITH SBEACR TREATMENT SYSTEM ENVIRONMENT

The buildings are treated with *PitCharger* each month to jump-start the anaerobic activity. Approximately 400,000 gallons of slurry is treated with aeration in the SBEACR tank for 20 minutes out of every two hours. 50,000 gallons per day are pumped back into the larger storage tank and then replaced with 50,000 gallons of untreated slurry. This process goes on 24 hours per day. The pull plugs buildings are also recharged from the SBEACR tank once per month.

Treated slurry is applied to the field three times per year. With the bottom aeration and the use of Phytase, nutrient values (N-P-K is 10-8-11 pounds per 1,000 gallons) allow 10,000- to 12,000 gallons of slurry to be applied annually per acre to surrounding row crops in accordance with their Manure Management Plan.

### MANAGER COMMENTS

John says, “*PitCharger* keeps the pits free of solids and the air is quite fresh, which benefits both the animals and the employees. The aggressive pre-treatment of the manure in the pits before it arrives in the storage tank jump-starts the anaerobic activity that is key to this system. Previously, we had to pull the pits every two weeks to keep the air quality in the buildings where we wanted it. Today, we’re pulling monthly. The product paid for itself in labor savings. We figure *PitCharger* has reduced our water use by over one million gallons per year, saving us \$6,000 in hauling costs. In addition, with all the microbial activity we are running the SBEACR system 20 minutes out of each two hours instead of the prescribed 60 minutes. This translates into another \$2,700 annually in energy savings. To say we’re pleased is an understatement.”

**What about the odor of the effluent?** Al will tell you, “I have personally rubbed my hands in the treated liquid and can say you couldn’t notice any odor until you held it right to your face, and very little even then!”

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[info@pitcharger.com](mailto:info@pitcharger.com) • 888-231-1002