

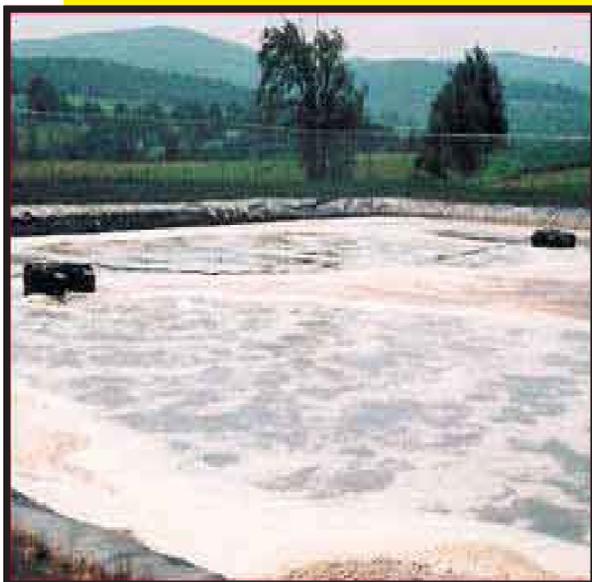
INTEGRITY Manure Treatment and Application with a Pulse Jet

Fessenden Dairy

King Ferry, NY



INTEGRITY pulse jet applying to grassland. (Note light color of treated manure from INTEGRITY nutrient control system.)



Low-nutrient, aerated liquid as a result of the INTEGRITY treatment process will be applied to a small land base, allowing for more animals per acre.

“We wanted to reduce odors to maintain good relations with our neighbors.”

-Tim Fessenden

OBJECTIVES

1. Nutrient removal (particularly phosphorus)
2. Odor reduction
3. Runoff reduction
4. Soil compaction reduction
5. Reduced labor and land application costs
6. Reduction in overall environmental liability

DESCRIPTION OF SYSTEM

Fessenden Dairy is a 550-cow scraped dairy utilizing sawdust bedding. Currently manure is pumped through two screw-press separators in series, with the separated solids being composted in aerated static piles and sold. Liquids are hauled to a remote lagoon and either applied directly by tanker, or by drag hose.

The current system will be greatly enhanced through the addition of an INTEGRITY Nutrient Control System, that can remove 90% of the phosphorus. Pretreated liquids enter a dual-stage, facultative, tri-zone digester system utilizing INTEGRITY Aeration Systems for odor control and further nutrient reduction. The resulting liquid, low in nutrients and solids, will be applied to a limited land base near the dairy, while high-nutrient clarifier sludge will be applied to distant acreage.

The cornerstone of the system is the INTEGRITY PulseJet, which is designed to apply liquids at low, precisely controlled rates over a large area, minimizing runoff. The self-traveling, water-powered PulseJet fires high-pressure pulses of liquid at regular intervals, and may be set up many miles from the lagoon. The PulseJet operates with minimal supervision and turns itself off automatically upon return, as well as in the event of leaks and ruptures.

OUTCOME

This project is currently in its final stages of design with construction to begin during the winter/early spring of 2004. The system is anticipated to be fully operational by late summer/early fall 2004. Collaborators include:

Fessenden Dairy: Project management

Synagro Corporation: Project coordination

INTEGRITY Nutrient Control Systems: Process engineering, equipment specification and supply

Agricultural Consulting Services: Structural project engineering, nutrient testing /planning

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