Conservation Innovation Grant (CIG)
Livestock Air Monitoring & Odor Project
in cooperation with
Conservation Innovation Grant (CIG) Livestock Air Monitoring & Odor Project

Project Overview:

- $1.6 Million effort (USDA/DNR/DATCP) over a 3-year period
- Demonstration of current control technologies, NOT basic research
- Focused on Ammonia, Hydrogen Sulfide, and Odors from CAFOs, primarily manure storage lagoons
Study Participants:

- A request went out State-wide for farmers willing to participate in the study
- Six farms were selected by a Steering Committee
- Criteria included type of operation and a favorable layout for air monitoring
Conservation Innovation Grant (CIG) Livestock Air Monitoring & Odor Project

**Practices Studied:**

- Permeable (geotextile) lagoon cover
- Impermeable (HDPE) lagoon cover
- Anaerobic Digester
- Solids Separation / Aeration
Conservation Innovation Grant (CIG) Livestock

Air Monitoring & Odor Project

Project Objectives:

- Evaluate the ATCP 51 Odor Standard compared to measured ambient odors on operating farms

- Install control practices to reduce ambient air NH3 and H2S concentrations, and odors

- Evaluate the effectiveness of the control practices
Permeable Lagoon Cover – Case Study # 3
Nasal Ranger™
Field Olfactometer

“ODOR SCHOOL”®

STEVEN R. STRUSS
Odor Inspector

Odorous Emissions Evaluation Field Certification
For Measuring Ambient Odors

2 October 2006
St. Croix Sensory Evaluation & Training Center
Lake Elmo, Minnesota

350 Lake Elmo Avenue N
www.freesense.com & www.nasalranger.com
Sample Nasal Ranger™ Field Data (without cover)
Sample Nasal Ranger™ Field Data (with cover)
Permeable Cover Results

![Graph showing permeable cover results. The x-axis represents distance from the lagoon in feet, ranging from -200 to 1200. The y-axis represents average nasal ranger readings. The graph compares readings with and without cover, indicating a decrease in readings as distance from the lagoon increases.](image-url)
Comparison of Nasal Ranger™ to Odor Score
Permeable Cover
Key Odor Study Findings

• Permeable covers are very effective at controlling odors from manure storage lagoons (~70% reduction).

• Impermeable covers are highly effective at controlling odors from manure storage lagoons (100% reduction).

• Solids separation with aeration is somewhat effective at controlling odors from manure storage lagoons (~25% reduction).

• Anaerobic digesters are ineffective at controlling odors from manure storage lagoons (+/-15%); however operating conditions (retention time, substrate addition, etc.) can influence this.

• Agitation of stored manure can greatly increase odors.
Implications for the NR 445 Rule

BMPs to reduce VOCs
Contact Information

Steve Struss – Agricultural Livestock Siting Engineer – DATCP

- Phone: 608-224-4629
- Steve.struss@wisconsin.gov