Wisconsin Department of
**Agriculture, Trade and Consumer Protection**

Conservation Innovation Grant (CIG)

# Livestock Air Monitoring & Odor Project

*in cooperation with*

WISCONSIN
DEPT. OF NATURAL RESOURCES

# 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

# Conservation Innovation Grant (CIG) Livestock Air Monitoring & Odor Project

**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

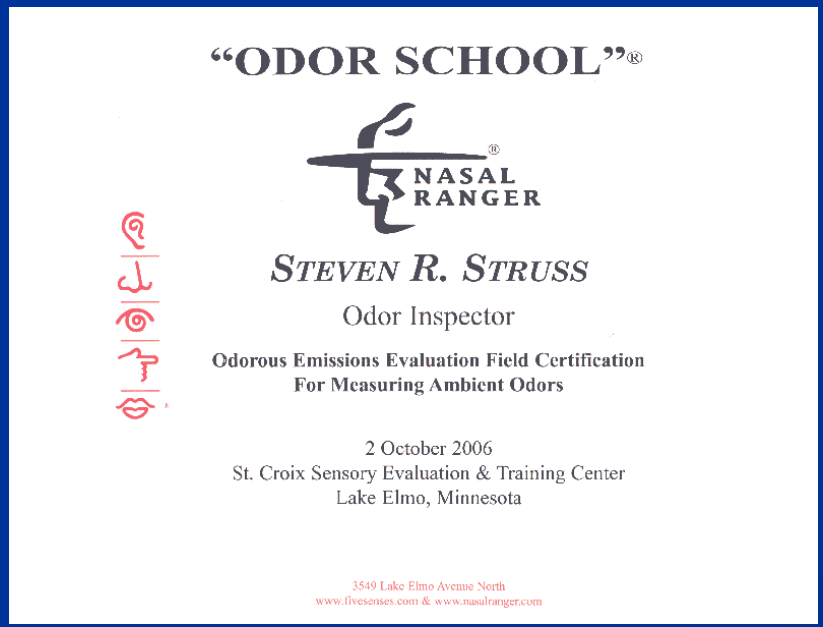
# Conservation Innovation Grant (CIG) Livestock Air Monitoring & Odor Project

**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"®

NASAL RANGER®

*STEVEN R. STRUSS*

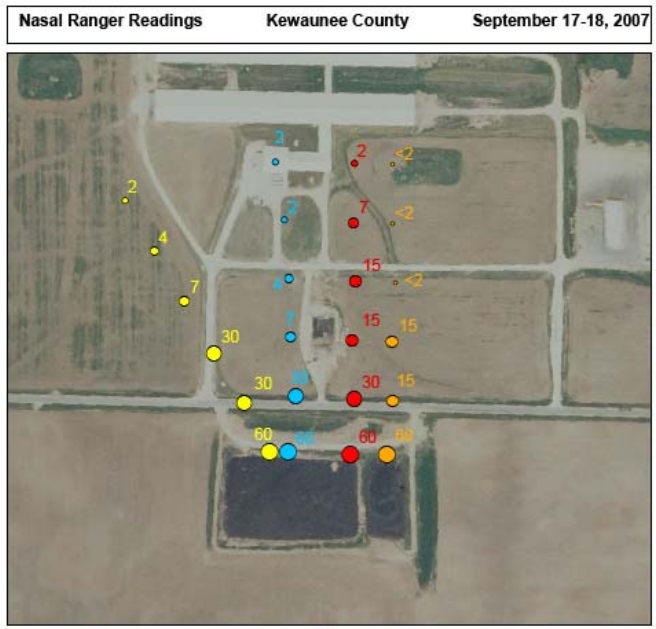
Odor Inspector

**Odorous Emissions Evaluation Field Certification**
**For Measuring Ambient Odors**

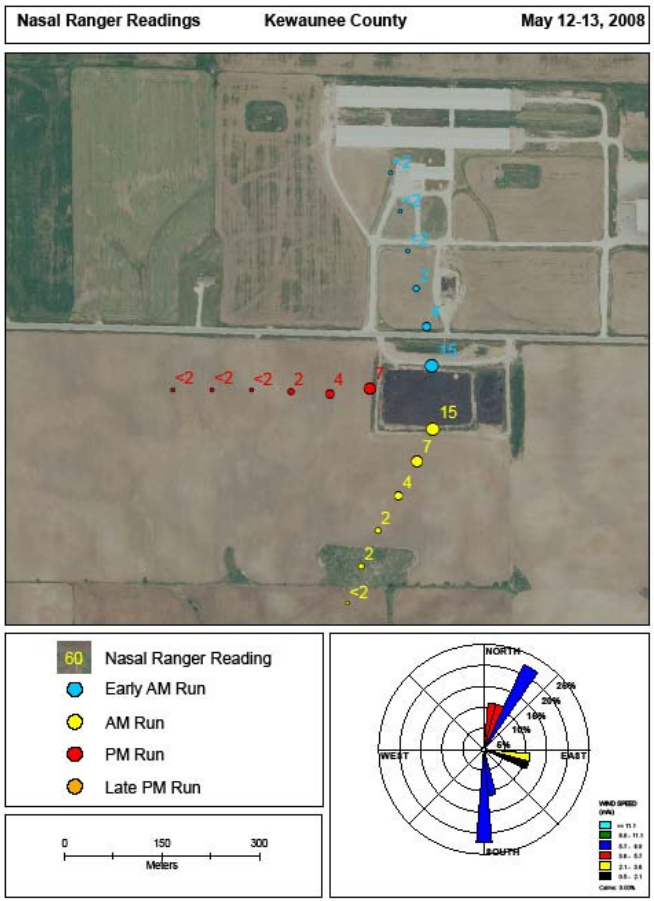
2 October 2006
St. Croix Sensory Evaluation & Training Center
Lake Elmo, Minnesota

3549 Lake Elmo Avenue North
www.fivesenses.com & www.nasalranger.com

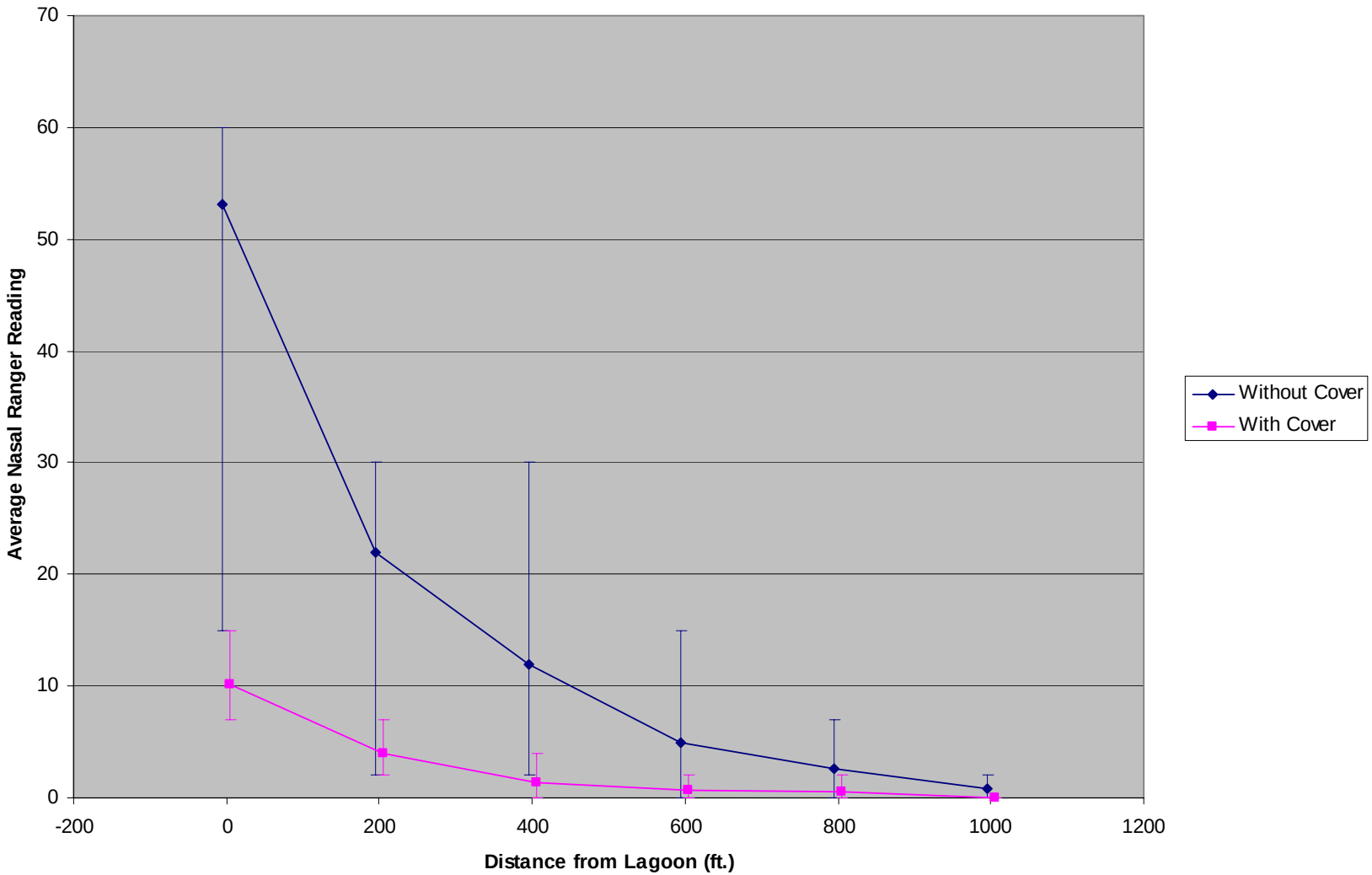
# Sample Nasal Ranger™ Field Data (without cover)



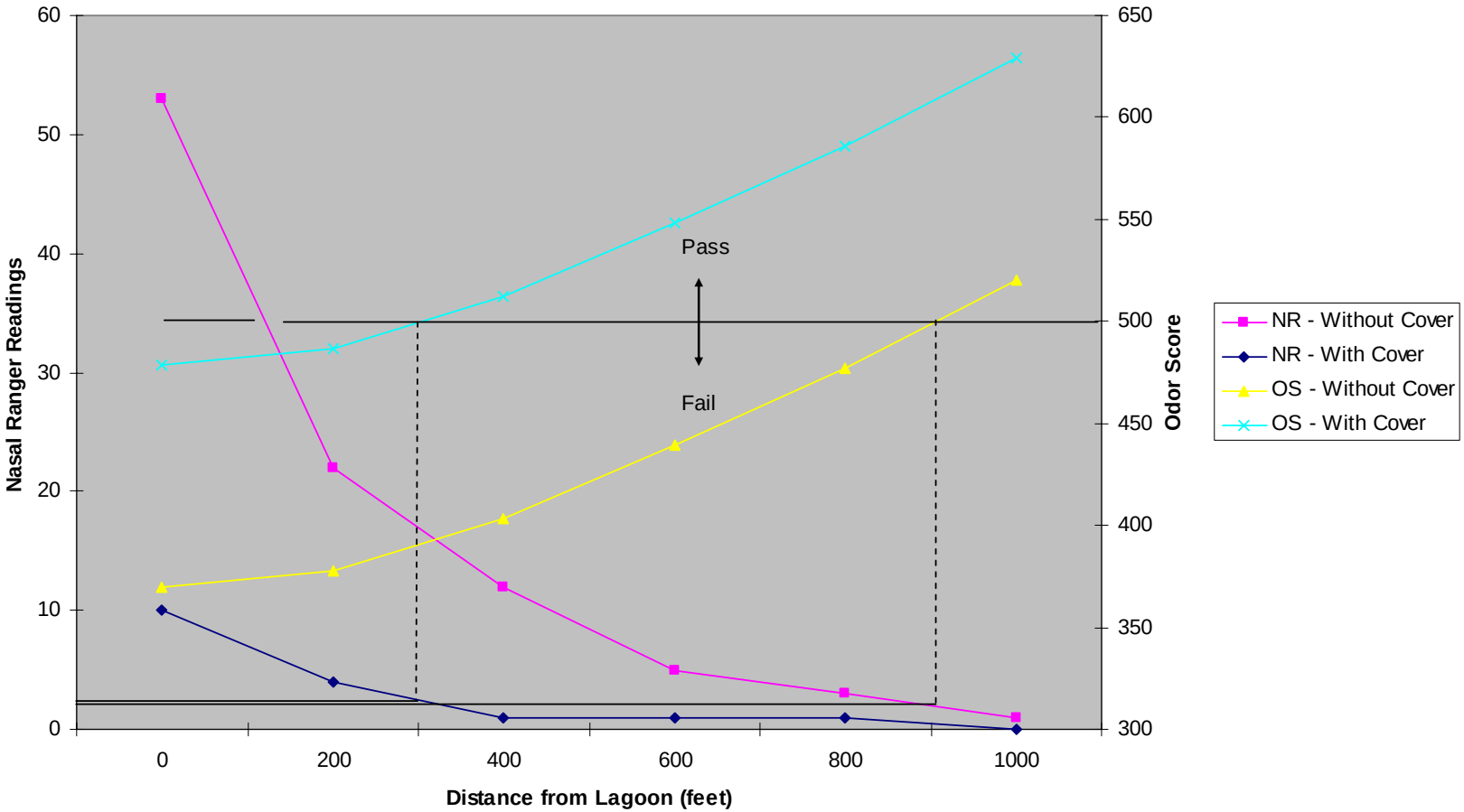
# Sample Nasal Ranger™ Field Data (with cover)



# Permeable Cover Results



# 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

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