Air Emissions, NR 445, EPA
What’s Coming in 2010
and What Should You Do?

John Ferguson, P.Eng, MBA
Conestoga-Rovers & Associates

Outline
- Typical Air Emissions
- Clean Air Act
- EPA Consent Decree
- State Regulations
- 2010 Requirements
- Best Management Practices

Typical CAFO Emissions
- Typical contributing air emission sources include:
  - Production Buildings
  - Housing Buildings
  - Feedlots
  - Waste Lagoons
  - Storage Piles
  - Combustion of fossil fuels (heating, generators...)

Typical CAFO Emissions
- CAFO primary pollutants of concern
  - VOCs
  - Particulate (TSP, PM10, PM2.5)
  - Hydrogen Sulfide
  - Ammonia
  - Odor
- CAFO secondary pollutants of concern
  - Methane
  - Nitrous oxide
  - Sulfur compounds

Clean Air Act
Clean Air Act (CAA)

- Federal Law with the purpose of protecting and improving air quality
- Regulates major air sources
  - 100 tons/yr of CO, NOx, SOx, VOCs or PM
  - 25 tons/yr total HAPs
  - 10 tons/yr single HAP

Clean Air Act (CAA)

- CAA requires that each major source
  - Obtain a Title V air permit
  - Perform air dispersion modeling
  - Meet ambient air criteria (NAAQ)
  - Provide emissions reports and certify compliance
  - Pay fees (typically based on quantity of emissions)

EPA Consent Decree

- Ensure AFO compliance with applicable regulations (Clean Air Act, CERCLA, EPCRA)
- Monitor and evaluate AFO emissions
- Develop standardized methods to estimate AFO emissions
- Improve Air Quality

Consent Decree can be found at: http://www.epa.gov/compliance/resources/agreements/caa/cafo-agr-050121.pdf

EPA Consent Decree - Status

- Sign-up period ended August 2005
- First ratified Air Compliance Agreements in January 2006
- EPA received approximately 2,600 Agreements made-up of swine (72%), dairy (18%), egg-laying (8%), broiler (2%)

What if you signed the Consent Decree?

- Pay up to $2,500 into emissions fund
- Must make your farm available for monitoring
- Must apply for all applicable permits
- Must install BACT or LAER control technology on all major sources
What if you signed the Consent Decree?

- EPA will not sue for past violations applicable to Clean Air Act, CERCLA, or EPCRA
- Decree does not cover past violations from generators, waste-to-energy, and land application of animal waste

Monitoring Program

- Data collection commenced Summer 2007
- Will likely be completed in 2009
- Different types of operations and animal groups will be studied
- 22 sites have been selected

Monitoring Program

Different types of operations and animal groups will be studied

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Further Information

- Consent Decree does not impact actions to abate odors
- Odors are State and Locally governed
- Consent Decree does not provide protection against State or Local Government permitting requirements

Emission Factors

- Emission factors will be developed for the following compounds:
  - Ammonia (NH₃)
  - Hydrogen Sulfide (H₂S)
  - Volatile Organic Compounds (VOCs)
  - Particulate Matter (TSP, PM10, PM2.5)
- Emission units will likely be tied to the type and number of animals at each farm

State Regulations

Further Information
NR 445
- Regulated by Wisconsin Department of Natural Resources
- Regulation for Hazardous Air Pollutants (HAPs) including ammonia and H₂S
- Specifies emission thresholds and ambient air criteria

NR 445
- Compliance with NR 445 is not required until July 31, 2011 for sources associated with agricultural waste.

NR 445
- NR 445(3)(c) States that air emissions associated with Ag. Waste will be deemed in compliance provided best management practices (BMPs) are followed
- If BMPs are not implemented, must prove compliance with ambient air criteria
- BMPs are being developed by Wisconsin Department of Agriculture, Trade and Consumer Protection.

NR406/407
- NR406 = Construction Permits
- NR407 = Operating Permits
- Required for major and minor sources
- Exemptions apply based on contaminant loading for minor sources

2010 Requirements

2010 Requirements - Federal
- Once emission factors have been published by USEPA, compliance with applicable regulations (Clean Air Act, CERCLA, EPCRA) will need to be determined

# animal units * emission factor = emissions tons/yr
2010 Requirements - Federal
- Must apply for all applicable permits
- Must install BACT or LAER control technology on all major sources
- This date will likely be pushed until 2011 since study does not appear to be completed

2010 Requirements - State
- Date pushed to July 31, 2011
- Must achieve compliance through the use of emission factors or the implementation of BMPs
- Must provide compliance demonstration and notification
- BMPs must be State approved

Best Management Practices

BMPs
- Proven/approved BMPs are not yet available on a Federal or State Level
- BMPs can be abatement applications or farm management

BMPs
- Dust Control/Suppression
- Neutralizing Agents
- Manure Handling
- Application Technique
- Minimum Separation Distance
- Ventilation/Windbreaks
- Biofilters
- Digestion
- Scrubbers

Dust Control/Suppression
- Dust can carry odor
- Vegetable Oil Sprinkling Systems
- Covers – Permeable or Impermeable
- Dust Collectors on Exhausats
- Watering Program
Neutralizing Agents
- Odor fence in doorways/fence line
- Lagoon sprays

Manure Handling
- Locate new manure storage as far as possible from residences
- Remove manure from buildings frequently
  - At least once per week
- Cover storage piles where possible
  - Lime, sawdust, plastic, etc
- Manure Additives
- Downwind from homes/high use areas

Application Technique
- Incorporate manure as soon as possible after applications to row crops
- Spread on cool days
- Use injection when possible
- Coordinate with neighbors before spreading

Minimum Separation Distance
- Aimed at reducing odor complaints

Ventilation/Windbreaks
- Ventilate buildings with fresh air to prevent anaerobic decomposition and reduce odors
- Locate ventilation away from residences
- Create windbreaks when ventilation faces residences

Biofilter
- Microorganisms (bugs) breakdown odor causing contaminants
- Many different types of filter media (corn cobs, wood chips, peat, etc)
- Air is passed slowly through the media
**Digesters**
- Anaerobic treatment of manure to reduce odor before application
- Can be used to generate methane for energy
- Reduces pathogens to protect water quality

**Wet Scrubber**
- Applied to air streams/exhausts
- Can remove particulate, ammonia, and hydrogen sulfide

**Summary**
- EPA (CAA) – agriculture not exempt but lacking tools to evaluate emissions
- Consent Decree – study for emission factors
- Facilities use emission factors to determine major/minor significance
- Major – must get Title V permit (incorporates BACT/LAER) in addition to State construction/operating permits (incorporates BMP)
- Minor – State construction/operating permits (incorporates BMP)

**Contact Info**
John Ferguson, P.Eng.
Conestoga-Rovers & Associates
519-884-0510
jferguson@craworld.com