

US EPA ARCHIVE DOCUMENT



# **EPA Regional CAFO Waste Issues**

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# Overview

- ❑ Sector profile
- ❑ Water quality context
- ❑ Clean Water Act context
- ❑ 2003 CAFO rule highlights
- ❑ Research priorities



# Animal Feeding Operations

- Produce 500 million tons of manure annually in US, 3 times the amount of human sanitary sewage
- >90% applied to crop or forage land
- About 4% of AFOs are defined as CAFOs under NPDES program, generate >60% of manure produced at all AFOs.



# Animal Feeding Operations- EPA Region 5

- ❑ States are top producers of corn, soybeans, milk, eggs, meat, other agricultural products
- ❑ 120 million chickens, 26 million turkeys, 17 million hogs, 10 million cattle, 2 million ducks (2002)
- ❑ Most confined within AFOs
- ❑ About 2400 large CAFOs (ex: >2500 hogs), undetermined number of medium CAFOs (ex: 200-699 mature dairy cows)
- ❑ Rainfall and snowmelt from crop and forage land is primary route of manure pollutants entering surface water in R5



# Water quality context

## □ EPA NPDES priorities

- Sewage overflows
- Soil erosion from construction
- Urban storm water runoff
- Animal feeding operations



# Water quality context



- Manure has contaminated wells, killed fish, and contributed to chronic nutrient and pathogen problems in the Region.



**FISH KILL CLEANUP**  
A DNR employee scoops a trout from Willow Creek soon after the spill was reported one year ago this July.

# Water quality problems

- There are widespread impairments due to nutrients and pathogens in the Region.
  - Wisconsin recently recorded 52 manure runoff or discharge events in 12 months.
  - Ohio found that runoff following manure application on snow is toxic to fish.
  - Minnesota reports that land application of fresh manure can account for up to 80 percent of bacteria in surface water.

*“About a dozen wells in southern Brown County were contaminated earlier this year from manure spread on frozen ground.”*

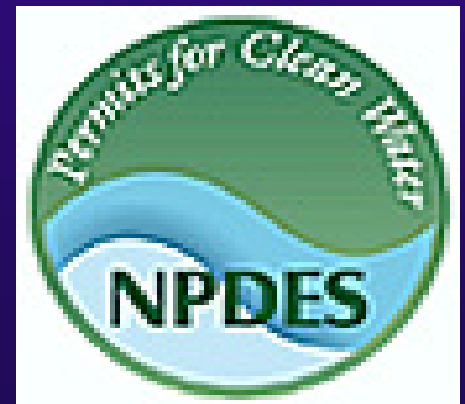
- Green Bay Press Gazette, May 9, 2005.





# Clean Water Act context

- ❑ A “discharge of a pollutant” from a “point source” to “waters of the United States” is prohibited unless the discharge is in compliance with a permit.
- ❑ A person who discharges or proposes to discharge must apply for a permit.
- ❑ Permits authorize discharge in certain circumstances. They can provide liability protection when natural disasters cause a discharge.





# Permitting Goals and Status

- For all large CAFOs to possess NPDES permits
  
- 60% in Region 5 have permits (2006):
  - MN: 1000 of 1007 (99%)
  - WI: 161 of 161 (100%)
  - IN: 413 of 584 (61%)
  - MI: 56 of 198 (23%)
  - OH: 34 of 162 (21%)
  - IL: 8 of 500 (2%)
  
- *Waterkeeper* rule will revise expectations regarding which CAFOs have a duty to apply for a permit



# 2003 CAFO Rule


- Focus is on four percent of AFOs which produce 60 percent of manure.
- Estimated annual solids and nutrient discharge reductions of 2.2 billion and 166 million pounds, respectively. Estimated annual pathogen discharge reductions of  $3,342 \times 10^{19}$  coliform forming units.



# 2003 CAFO Rule

- ❑ What is a Large CAFO?
- ❑ What is a Medium CAFO?
- ❑ What is the production area?
- ❑ What is manure, litter, and process wastewater?
- ❑ What is a liquid manure handling system?
- ❑ What is the land application area?

# What is a Large CAFO?



<b>Animal Type</b>	<b>Threshold</b>
Mature Dairy Cows	700
Veal Calves	1,000
Beef Cattle or Heifers	1,000
Swine	2,500 (55 lbs or more) 10,000 (under 55 lbs)
Horses	500
Sheep or Lambs	10,000
Turkeys	55,000
Chickens, liquid manure	30,000
Chickens, other than liquid manure	125,000 (not laying hens) 82,000 (laying hens)
Ducks	5,000 (liquid manure) 30,000 (other than liquid manure)

# What is the production area?

- ❑ Animal confinement area
- ❑ Manure and waste storage area
- ❑ Raw material storage area
- ❑ Egg washing and mortality management areas



# What is the confinement area?

- ❑ Lots
- ❑ Yards
- ❑ Barns
- ❑ Houses
- ❑ Stables
- ❑ Milking centers
- ❑ Walkways



# What is the manure and waste storage area?

- Lagoons
- Ponds
- Pits
- Tanks
- Basins
- Sheds
- Stockpiles
- Compost piles
- Mortalities





# What is the raw material storage area?

- ❑ Feed silos, bunkers, and bags
- ❑ Waste feed
- ❑ Bedding and litter (fresh)



# What is manure, litter, and process wastewater?

- ❑ Urine and manure
- ❑ Bedding and litter (used)
- ❑ Compost
- ❑ Leachate
- ❑ Water used at the AFO
  - Watering
  - Washing
  - Flushing
  - Animal cooling
  - Swimming
  - Dust control
- ❑ Precipitation coming into contact with any of the above



# What is the land application area?

- Land to which CAFO owner or operator applies manure, litter, or process wastewater.
  - Owned,
  - Rented,
  - Leased, or
  - Access agreement



# Considerations

- ❑ Unpermitted discharges from production areas are prohibited.
- ❑ Unpermitted discharges from land application areas are prohibited unless a discharge is precipitation-related and qualifies as agricultural storm water.



# Research Priority Recommendations

- National- Evaluation of P index as a predictor of P transport from land application sites
- Region 5- Information to supplement EPA Winter Spreading Guidance

