

The Regulation of CAFO Emissions in the United States

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CAFOs



Regulation of CAFO Emissions

- Responsibility rests with US Environmental Protection Agency (EPA)
- Clean Air Act (CAA) is primary authority
- Some reporting requirements under
 - Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
 - Emergency Planning and Community Right-To-Know (EPCRA)

Reporting of Releases

- **Comprehensive Environmental Response Compensation Liability Act (CERCLA)**
 - Requires reporting of release to the National Response Center if equal to or greater than the “reportable quantities”
 - Ammonia – 100 lbs/ day
 - Hydrogen sulfide – 100 lbs/day
- **Emergency Planning and Community Right-To-Know (EPCRA)**
 - Reporting requirements to states and locals

CERCLA/EPCRA REPORTING

- **Proposed to exempt CAFOs from reporting requirements**
- **Significant number of comments received**
 - Definition of animal waste and farm
 - Support for and opposition to rule
 - Expand to other sources of animal waste
 - Community Right-to-Know concerns
- **Final decision in Fall 2008**

Regulation of Discharges to Water

- **Clean Water Act (CWA)**
 - Sources must get a National Pollutant Discharge Elimination System (NPDES) permit prior to discharge
 - Authorizes EPA to develop effluent guidelines for Concentrated Animal Feeding Operations (CAFOs)
 - Exempts all agricultural sources except CAFOs
- **EPA finalizing CAFO rule**

WATER CAFO RULE

- **Final Rule: Summer 2008**
- **Proposed to add a self-certification process for non-dischargers**
- **Three options for incorporation of the terms of the nutrient management plan**
 - Tons/acre
 - Rate-based
 - Formula
- **Compliance date of February 2009**

Regulation under the Clean Air Act

- **Status of regulations under the CAA**
 - **Currently:**
 - Federal ambient standards for particulate matter and ozone
 - VOCs regulated as an ozone precursor, NH₃ not regulated as a precursor for PM_{2.5}
 - No federal ambient standards for ammonia
 - No federal source standards for CAFO emissions
 - Some inventory requirements for ammonia
 - Hydrogen Sulfide not a hazardous air pollutant
 - States may regulate through SIPs

CAA - NAAQS

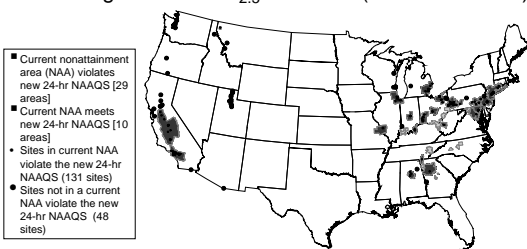
- **National Ambient Air Quality Standards (NAAQS)**
 - New PM standards in 2006
 - New Ozone standards in 2008
 - Regional Haze rule
- **Implementation of NAAQS**
 - Designation of nonattainment areas
 - State Implementation plans

EPA's PM Standards

	Previous Standards *		2006 Standards	
	Annual	24-hour	Annual	24-hour
PM_{2.5}	15 µg/m³ Annual average	65 µg/m³ 98 th percentile	15 µg/m³ Annual average	35 µg/m³ 98 th percentile
PM₁₀	50 µg/m³ Annual average	150 µg/m³ 1 expected exceedance	Revoked	150 µg/m³ 1 expected exceedance

* Original PM_{2.5} standards established in 1997; PM₁₀ standards established in 1987. In 1993, EPA eliminated the ambient indicator for measuring compliance with NAAQS and PSD increments. EPA no longer considers TSP to be a regulated NSR pollutant. (FR Vol. 73, no. 76, Friday, May 16, 2008, page 28333.)

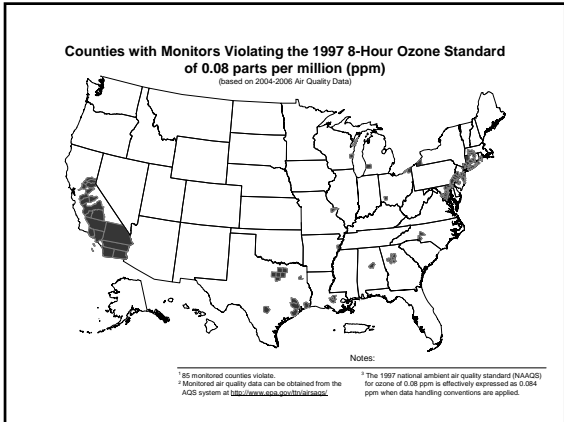
Current PM_{2.5} Nonattainment Areas and Sites Exceeding 24-Hour PM_{2.5} Standard (2004-2006 data)

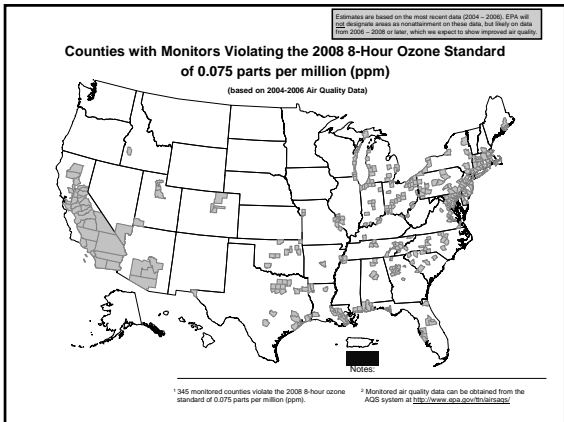


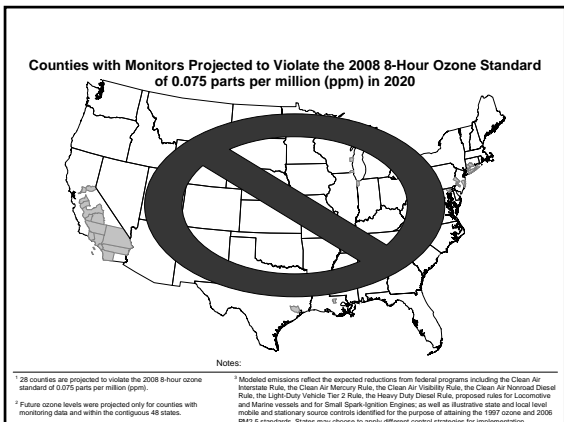
- 48 violating sites outside of current NAA are located in 27 areas:
 - 25 CBSAs: Largest are Seattle, Sacramento, San Jose, Milwaukee, Salt Lake City.
 - 2 State-Counties (not part of a CBSA): Shoshone ID; Ravalli MT
- States make initial recommendations for 24-hr designations using 2004-2006 data but 2003-2005 and 2005-2007 also relevant.

OZONE STANDARDS

Level of the standard	Averaging time
0.075ppm 2008 standard	8 hour 3 yr average of 4 th highest max 8-hr average concentrations
0.08ppm 1997 standard	8 hour 3 yr average of 4 th highest max 8-hr Average concentrations
0.12ppm	1 hour. Applies in limited areas 1 exceedance/year







CAA – STATIONARY SOURCES

- **Stationary sources may be regulated under NSPS, NSR/PSD, toxics standards, and State implementation plans**
- **Major source definition varies**
- **Initial determination of major source does not include fugitive emissions (cannot be reasonably captured, vented, and controlled)**
- **Fugitive emissions may be counted for modification of source**
- **Fugitive emissions do count when determining major source for HAP**

CAA - NSPS

- **New Source Performance Standards**
 - Industry or source specific
 - 60+ in place
 - None currently apply to farms
 - Some in place for boilers and stationary engines

CAA – NSR/PSD

- **New Source Review/Prevention of Significant Deterioration**
 - Permits required for new sources or major modifications to existing sources
 - Major source definition varies based on:
 - Attainment/nonattainment status of location
 - Amount of emissions or increase in emissions
 - Significance of modification

CAA - Operating Permits

- All major sources of air pollution required to have an operating permit (100 tpy of a regulated pollutant or 10 tpy of HAP or 25 tpy of combination of HAP)
- States run programs based on requirements in EPA Rule
- Does not require additional emission controls; merely pulls together existing requirements into a single document

CAA – AIR TOXICS

- List of 186 Hazardous Air Pollutants (HAP)
- EPA can add to or delete from list
- Ammonia and Hydrogen Sulfide are not currently on the list
- EPA has petitions to list:
 - Hydrogen Sulfide
 - Diesel Exhaust

CLEAN AIR ACT - AGENDA

- National Ambient Air Quality Standards
 - Ongoing reviews for Ozone, PM, NO₂
 - Litigation on implementation issues
- Nitrogen
 - Integrated Nitrogen Assessment
 - International N Task Force
 - Pilot Ammonia Monitoring Network

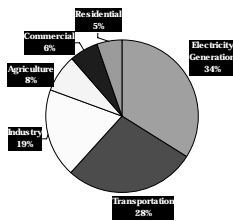
CLEAN AIR ACT - AGENDA

- **Boiler MACT rule vacated**
 - 112(g) in effect
- **Incinerator rules litigated**
 - May result in changes to definitions of waste
 - May impact animal incineration
 - May impact waste-to-energy facilities

CLEAN AIR ACT - AGENDA

- **Rulemaking for Mandatory Reporting of Greenhouse Gas Emissions**
- **Advanced Notice of Proposed Rulemaking (ANPR) for the Regulation of Greenhouse Gases under the CAA**
- **National Air Emissions Monitoring Study and development of Emissions Estimating Methodologies**

GHG EMISSIONS SOURCES



2005	
Sector/Source	Emissions (MMTCO ₂ e)
Electricity Generation	2,429.8
Transportation	2,008.9
Industry	1,352.8
Agriculture	595.4
Commercial	431.4
Residential	380.7
