

USDA AGRICULTURAL AIR QUALITY TASK FORCE

NEW MEMBERS BRIEFING

Bob Avant and Phil Wakelyn

November 28, 2006

Washington, D.C.

BACKGROUND OF AAQTF

- Farm Bill of 1996 addressed Agricultural Air Quality Research Oversight.
- Congress reported that:
 - a. A number of studies have alleged that agriculture is a source of PM-10 emissions;
 - b. Many of these studies have often been based on erroneous data;

BACKGROUND OF AAQTF CONTD.

- c. Federal research activities are currently being conducted by the Department of Agriculture (USDA) to determine the true extent to which agricultural activities contribute to air pollution and to determine cost-effective ways in which the agricultural industry can reduce air pollution; and

BACKGROUND OF AAQTF CONT.

- d. Policy recommendations issued by any federal agency to address air pollution problems related to agriculture or any other industrial activity, should be based on sound scientific findings that are subject to adequate peer review and should take into account economic feasibility.

BACKGROUND OF AAQTF CONT.

- Farm Bill directed the Chief of the Natural Resources Conservation Service (NRCS) to establish a task force to oversee and review research in agricultural air quality issues in order to ensure intergovernmental cooperation in research activities.

2006-2008 AAQTF MEMBERS

- Kevin G. Rogers (Arizona) Arizona Farm Bureau & Producer
- Kevin Abernathy (California) California Dairy Campaign
- Cynthia Cory (California) California Farm Bureau
- Manuel F. Cunha, Jr. (California) Nisei Farmers League
- Kristen Hughes (California) Sustainable Conservation

2006-2008 AAQTF MEMBERS

- Roger Isom (California) CA Cotton Ginners & Growers
- Paul Martin (California) Western United Dairymen
- Trisha Marsh-Johnson (Georgia) Veterinary and Environmental Technical Solutions
- Martin Bauer (Idaho) Idaho Department of Environmental Quality

2006-2008 AAQTF MEMBERS

- Michael Blaser (Iowa) Attorney, Brown Winick Law Firm
- Jerry Hatfield (Iowa) USDA-Agricultural Research Service
- Chris Peterson (Iowa) Producer, C&K Farms
- Wendy Powers-Schilling (Iowa) Iowa State University
- Brian Lindley (Kansas) No-till on the Plains, Inc.

2006-2008 AAQTF MEMBERS

- Charles Rice (Kansas) Kansas State University
- Phillip J. Wakelyn (Maryland) National Cotton Council
- Sagar Krupa (Minnesota) University of Minnesota
- Sussanna Von Essen (Nebraska) University of Nebraska Medical Center-Omaha

2006-2008 AAQTF MEMBERS

- Douglas Shelmidine (New York) Sheland Farms, Producer
- Viney P. Aneja (North Carolina) North Carolina State University
- Robert Pike (North Carolina) Braswell Foods
- Sally L. Shaver (North Carolina) US Environmental Protection Agency
- Annette H. Sharp (Oklahoma) Central Regional Air Planning Association (CENRAP)

2006-2008 AAQTF MEMBERS

- William Achor (Pennsylvania) Wenger's Feed Mill
- Robert V. Avant, Jr. (Texas) Texas A&M University & Producer
- Bryan W. Shaw (Texas) Texas A&M University
- Benjamin Weinheimer (Texas) Texas Cattle Feeder's Association
- Gary Baise (Virginia) Attorney, Kilpatrick Stockton, LLP
- Steven R. Kirkhorn (Wisconsin) Marshfield Clinic, Mayo Clinic

2006-2008 AAQTF USDA Members

- Ray Knighton, CSREES National Program Leader for Air Quality
- Robert Wright, ARS Natural Resources and Sustainable Agricultural Systems Supervisory Soil Scientist
- Dr. Allen Riebau, NFS National Program Leader for Atmospheric Sciences
- Charlie Walthall, ARS National Program Leader for Global Climate Change and Air Quality

Key Staff

(Who are critical to the AAQTF)

- Larry Clark, Deputy Chief
- Diane Gelburd, Designated Federal Official
- Michele Laur, Designated Federal Official
- Greg Johnson, AQ/At Sci. Team Leader
- John Brenner, AQ/At Sci. Phy. Scientist
- Roel Vining, AQ/At Sci. Specialist

Key Staff Cont.

(Who are critical to the AAQTF)

- Greg Zwicke, AQ/At Sci. Engineer
- Susan O'Neill, AQ/At Sci. Engineer
- Jeff Schmidt, Fla. Area Conservationist
- Elvis Graves, Reg. Tech. Specialist
- Sheryl Kunickis, Nat. Ag. Res.Coordinator
- Ron Heavner, Nat. AQ Specialist

OFFICERS & MEMBERSHIP

- Chief of NRCS serves as chair of the AAQTF.
- Task Force reports to the Chief of the NRCS, who presents Task Force recommendations to the Secretary of Agriculture.

OFFICERS & MEMBERSHIP

- Membership is composed of representatives of academia, agribusiness, regulatory organizations, environmental organizations, health disciplines, special government employees (SGEs), and others.

AAQTF ADVISORY ROLE

- Strengthen vital research efforts related to agricultural air quality;
- Determine the extent to which agricultural activities contribute to air pollution;
- Determine cost-effective ways in which the agricultural industry can improve air quality;

AAQTF ADVISORY ROLE

- Coordinate and ensure intergovernmental cooperation on research activities related to agricultural air quality issues to avoid duplication and insure data quality and sound interpretation of data.
- Advise the Secretary with respect to the role of the Secretary for providing oversight and coordination related to agricultural air quality.

EPA ROLE WITH AAQTF

- Membership on Task Force
- Provide information, guidance, updates on rulemakings regarding air quality issues
- Receive recommendations from Secretary
- Coordinate research with USDA
- Cooperate with USDA on resolution of air quality concerns

EPA ORGANIZATION



ENVIRONMENTAL STATUTES

- 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 CAFOs
 - Exempts all agricultural sources except CAFOs

ENVIRONMENTAL STATUTES

- 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

ENVIRONMENTAL STATUTES

- Emergency Planning & Community Right-To-Know Act (EPCRA)
 - Reporting requirements
- Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
 - Regulates manufacturing and application of pesticides
 - Spray drift and VOCs of concern

CLEAN AIR ACT

- Ambient Air Quality
- Mobile Sources
- Air Toxics
- Acid Rain
- Permits
- Stratospheric Ozone Protection
- Compliance and Enforcement

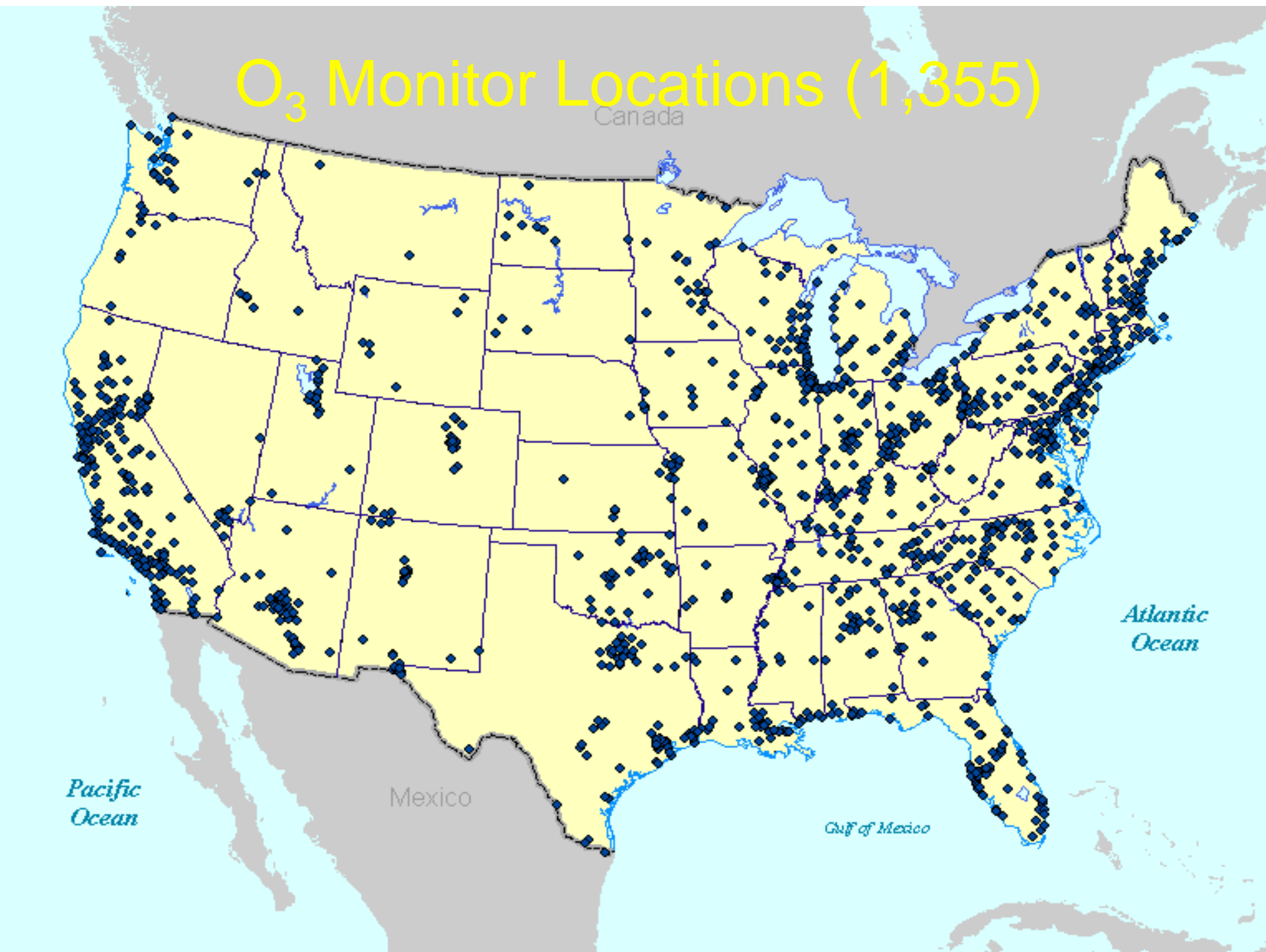
CAA – AMBIENT AIR QUALITY

- National Ambient Air Quality Standards (NAAQS)
 - establish limits for criteria pollutants (PM, ozone, lead, nitrogen dioxide, sulfur dioxide and CO)
 - require state plans on how to meet the limits
 - requires new source review permits prior to new construction or modification of a source
 - requires states to address their contributions to visibility impairment in Class I areas

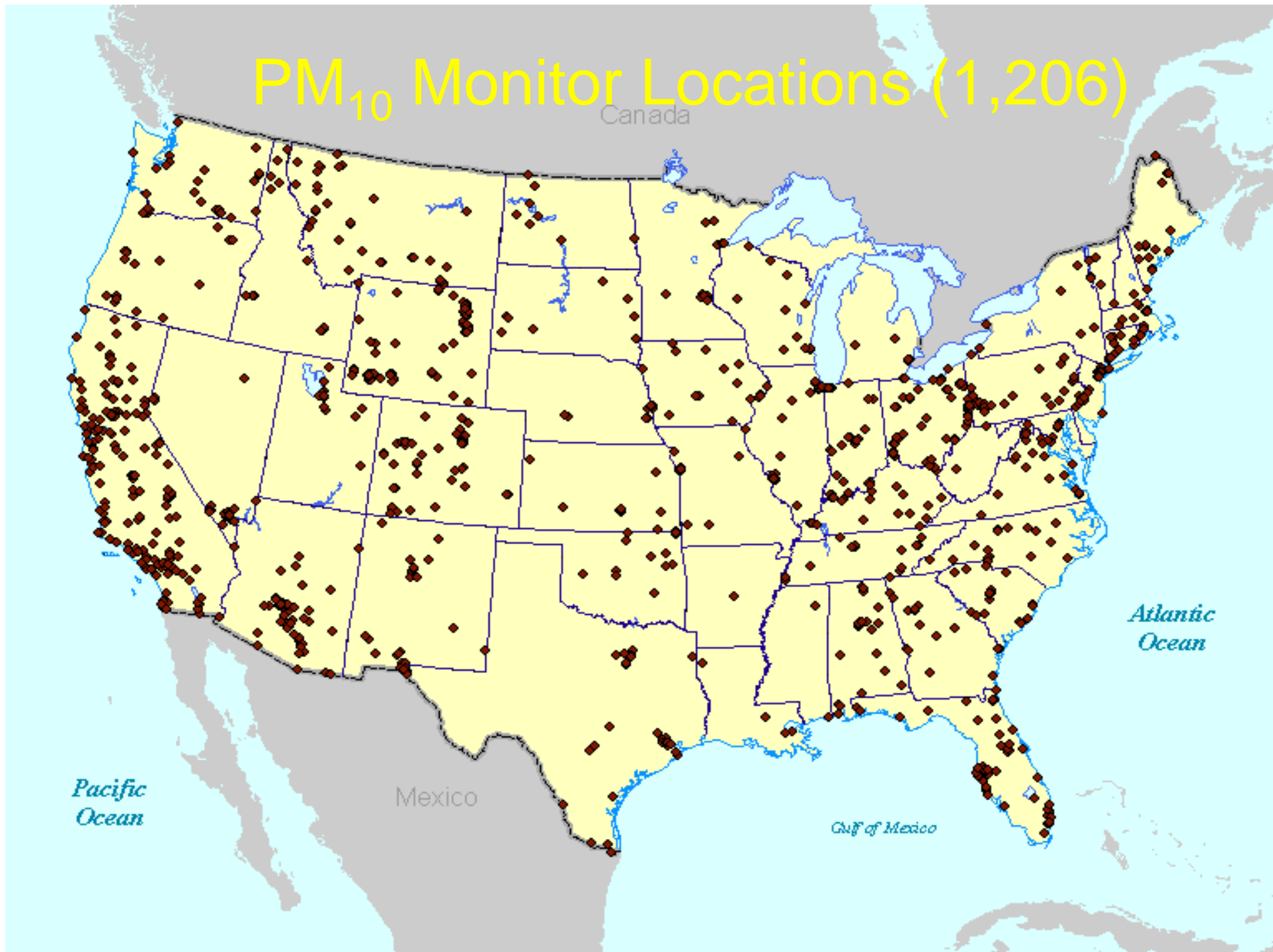
CAA – NAAQS

- NAAQS
 - Primary standards protect the public health
 - Secondary standards protect the welfare
 - Precursors may be regulated pollutants
 - Monitoring networks are established
 - Monitoring methods are prescribed
 - Modeling techniques are approved

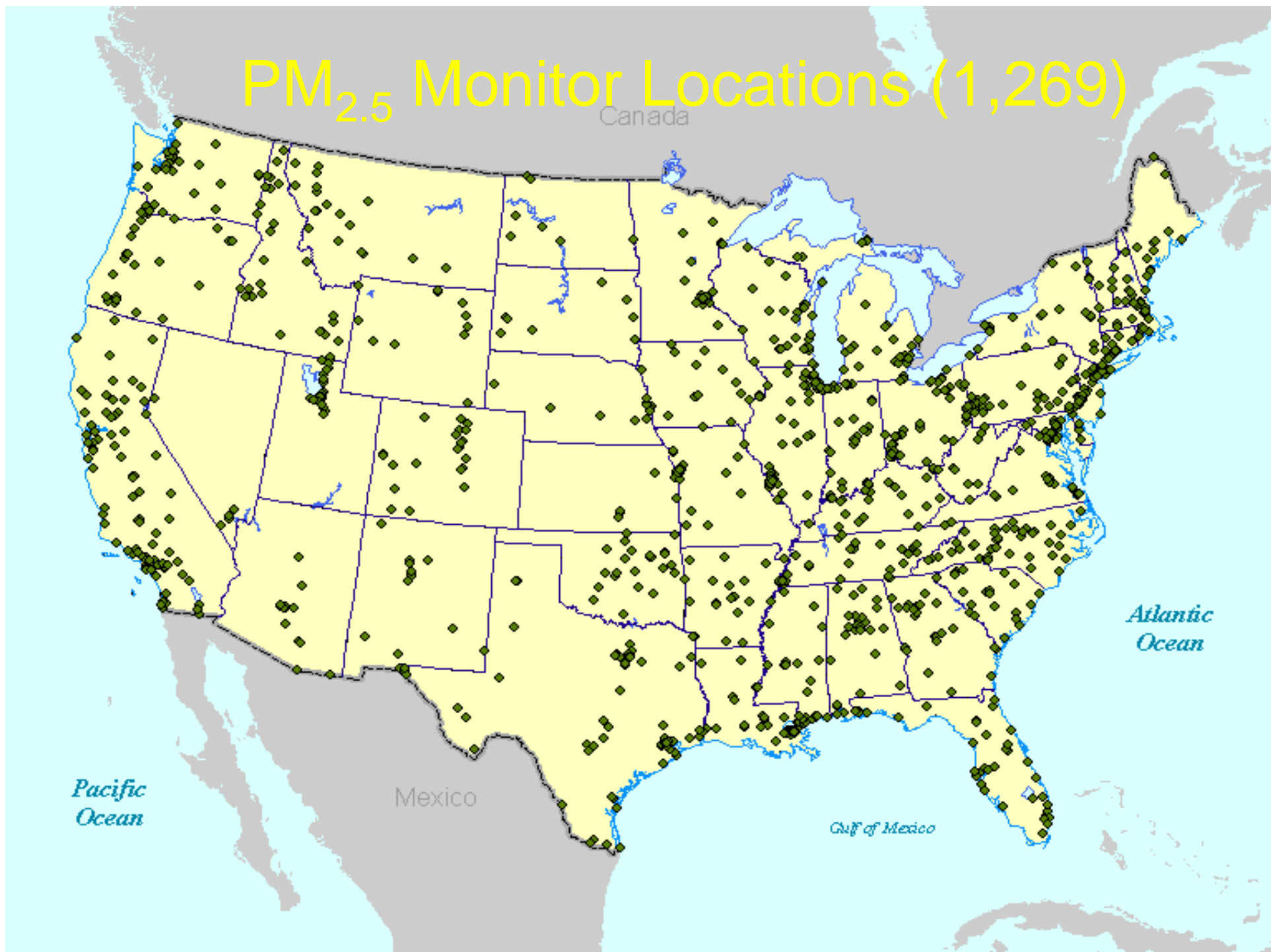
O₃ Monitor Locations (1,355)



PM₁₀ Monitor Locations (1,206)



PM_{2.5} Monitor Locations (1,269)



CAA - NONATTAINMENT

- State implementation plans (SIP)
 - If area is nonattainment, state designates area
 - 3 years after designation, SIPs are due which:
 - demonstrate attainment
 - provide enforceable requirements for reductions sufficient to reach attainment
 - provide for attainment in X (5-10)years

Nonattainment

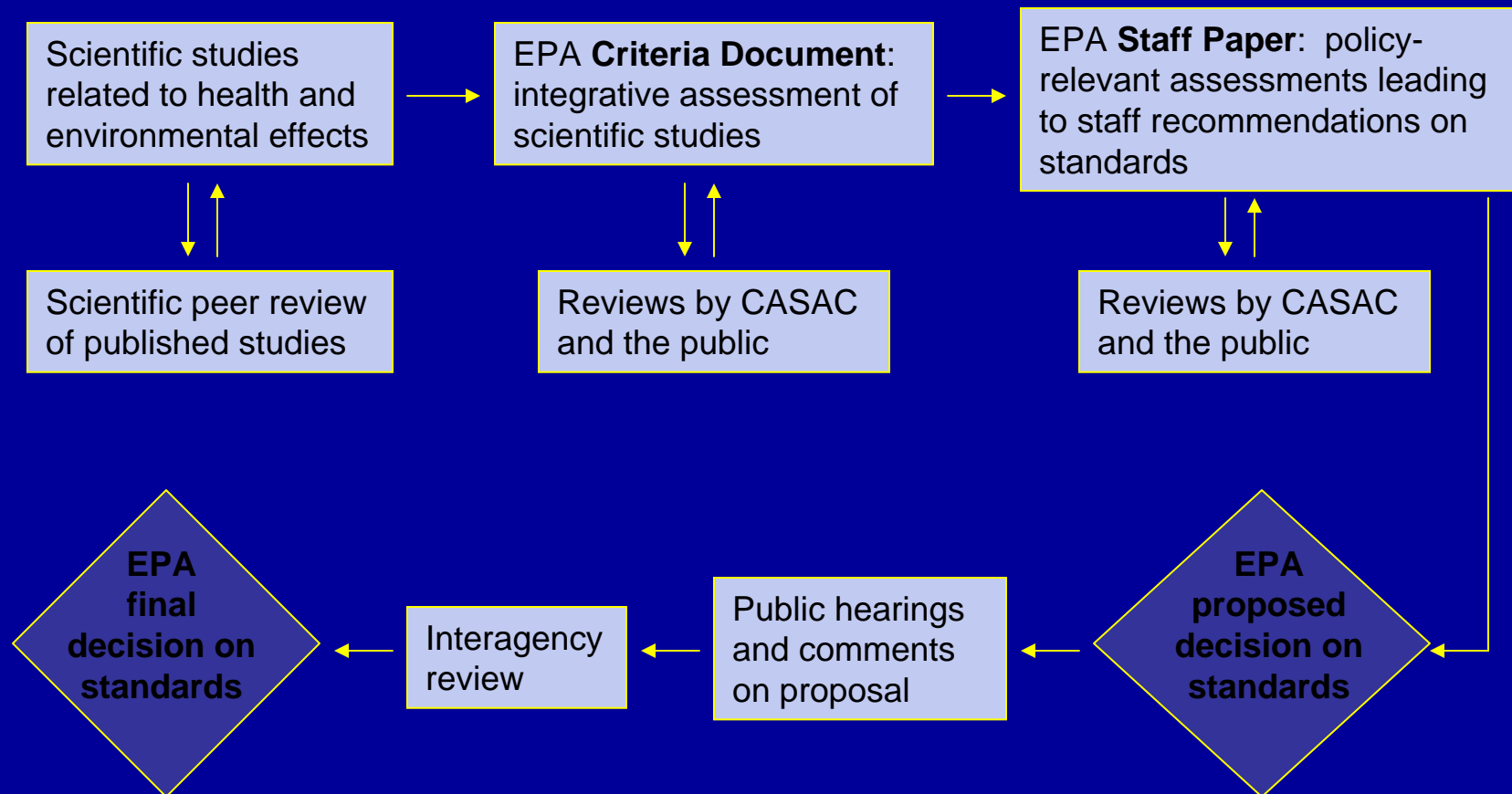
EPA Role

- Set air quality standards
- Issue emission standards for industry, vehicles, etc.
- Address interstate transport
- Ensure State Plans are effective

State/Local Role

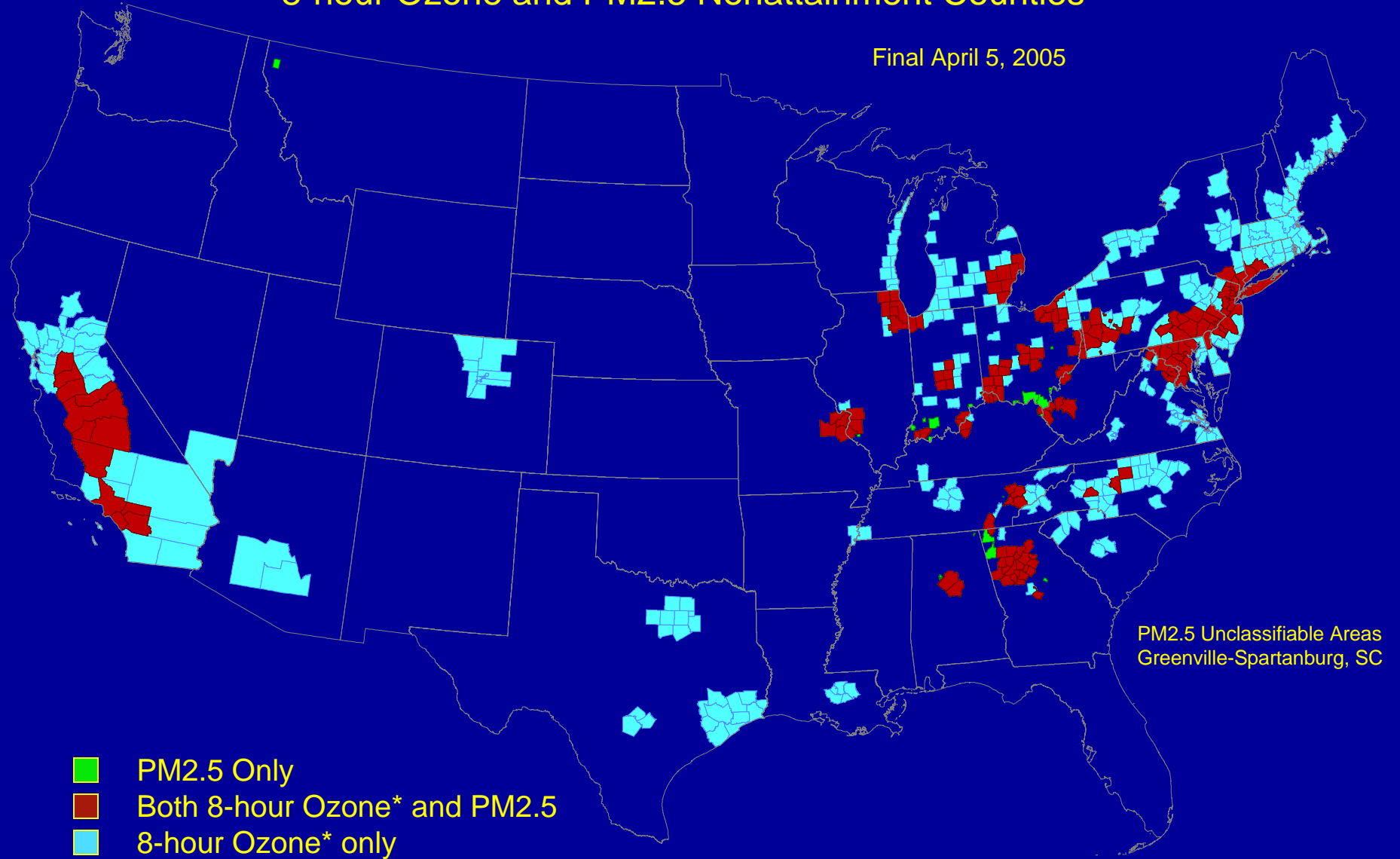
- Develop plans (with local strategies) to meet Air Quality Standards
- Implement plans
- Ensure compliance

NAAQS Review: Process



8-hour Ozone and PM2.5 Nonattainment Counties

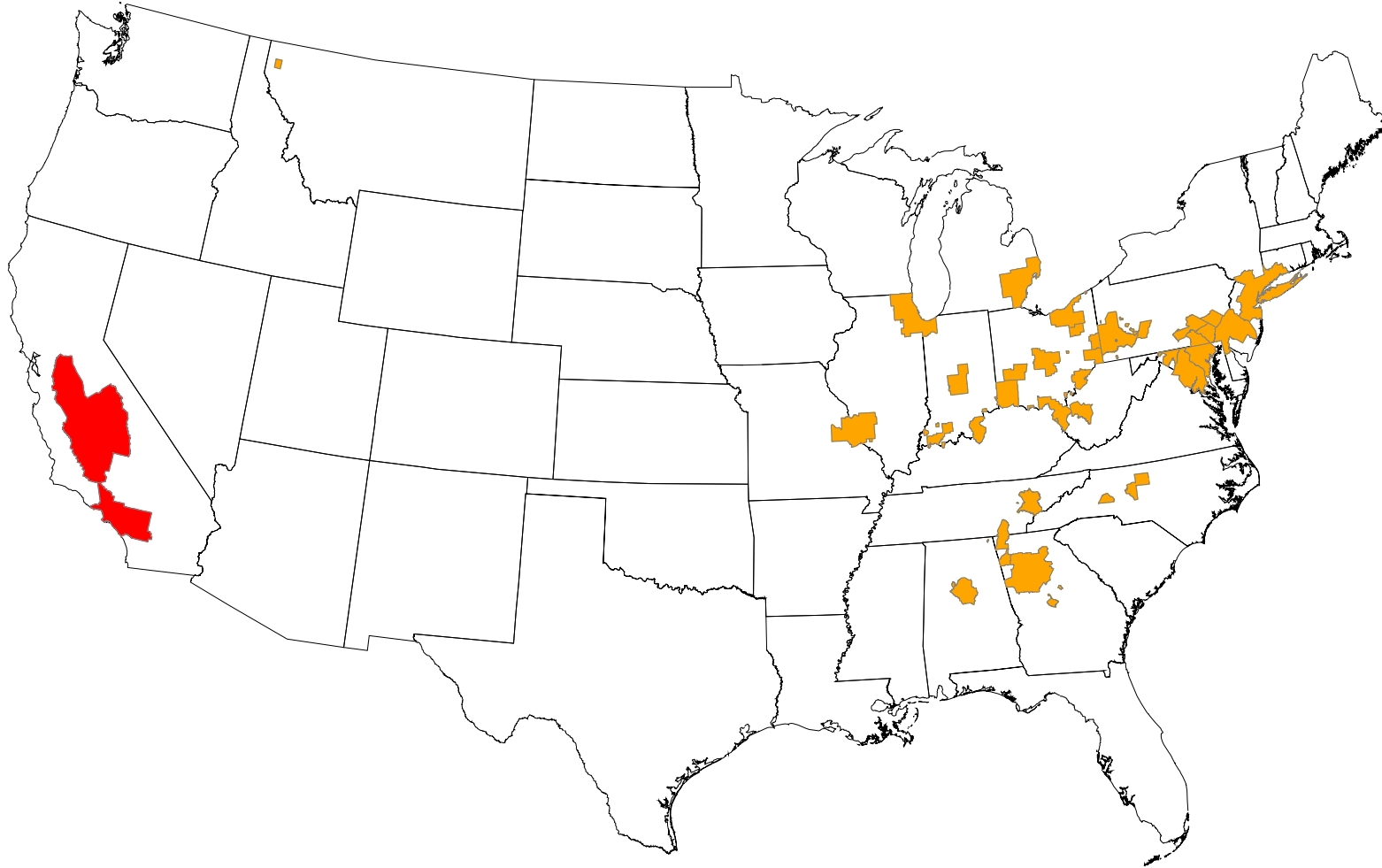
Final April 5, 2005



* Note: Ozone counties are shown as whole counties; however, in some cases, only part of the county was designated as nonattainment

Currently Designated PM_{2.5} Nonattainment Areas - 1997 Standards

Violated annual and/or 24-hour PM_{2.5} standards with designated data (2001-2003*)



Legend

Nonattainment areas violating:

- both annual (15 µg/m³) and 24-hour (65 µg/m³) standards
- ONLY the 24-hour standard (65 µg/m³)
- ONLY the annual standard (15 µg/m³)

Number of Areas

2

0

37

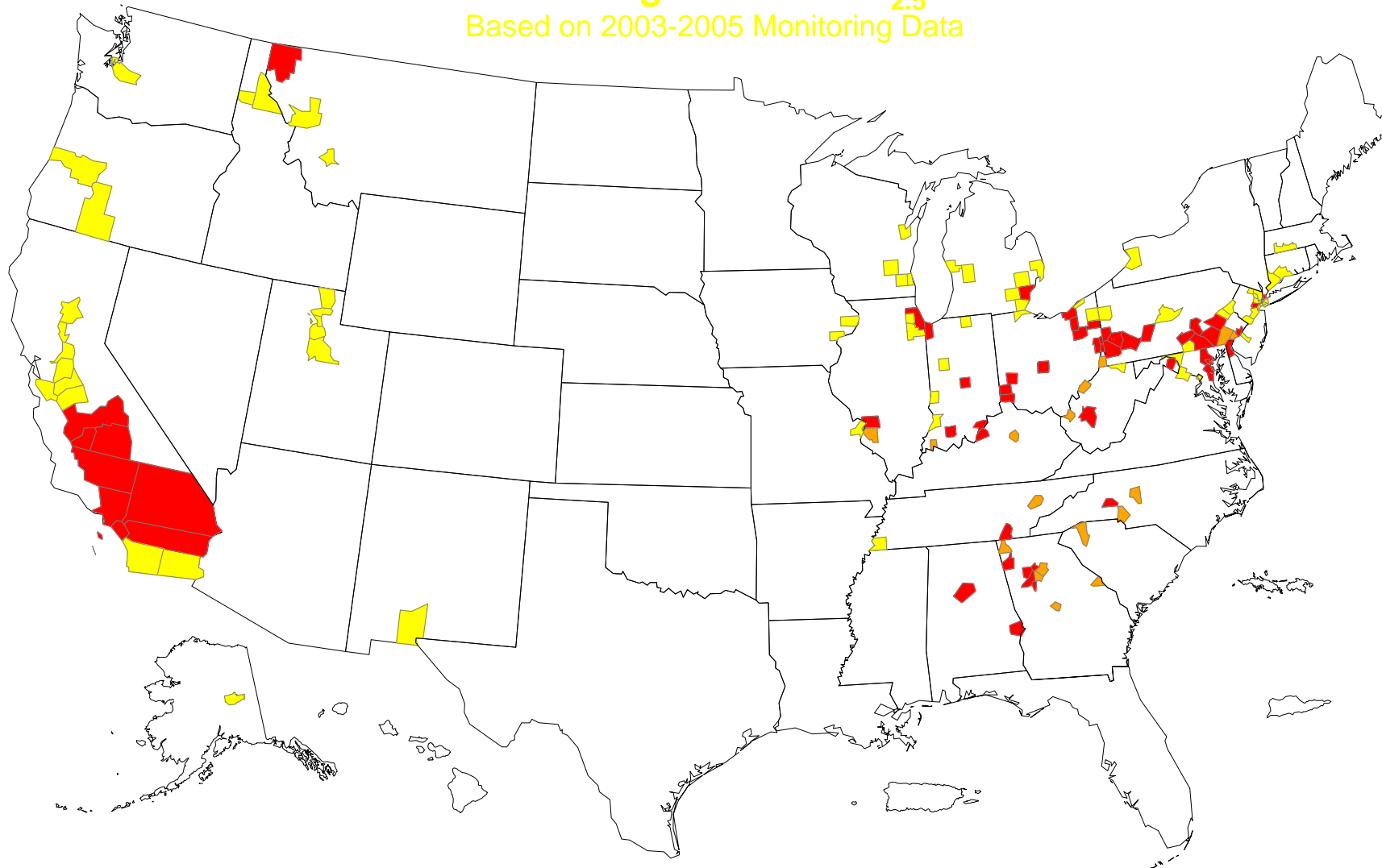
Total PM_{2.5} Nonattainment Areas

39

* 2002-2004 data were considered in the designation process but all nonattainment designations were based on 2001-2003 data

Counties Exceeding Revised PM_{2.5} Standards

Based on 2003-2005 Monitoring Data



Legend

County with monitor exceeding:

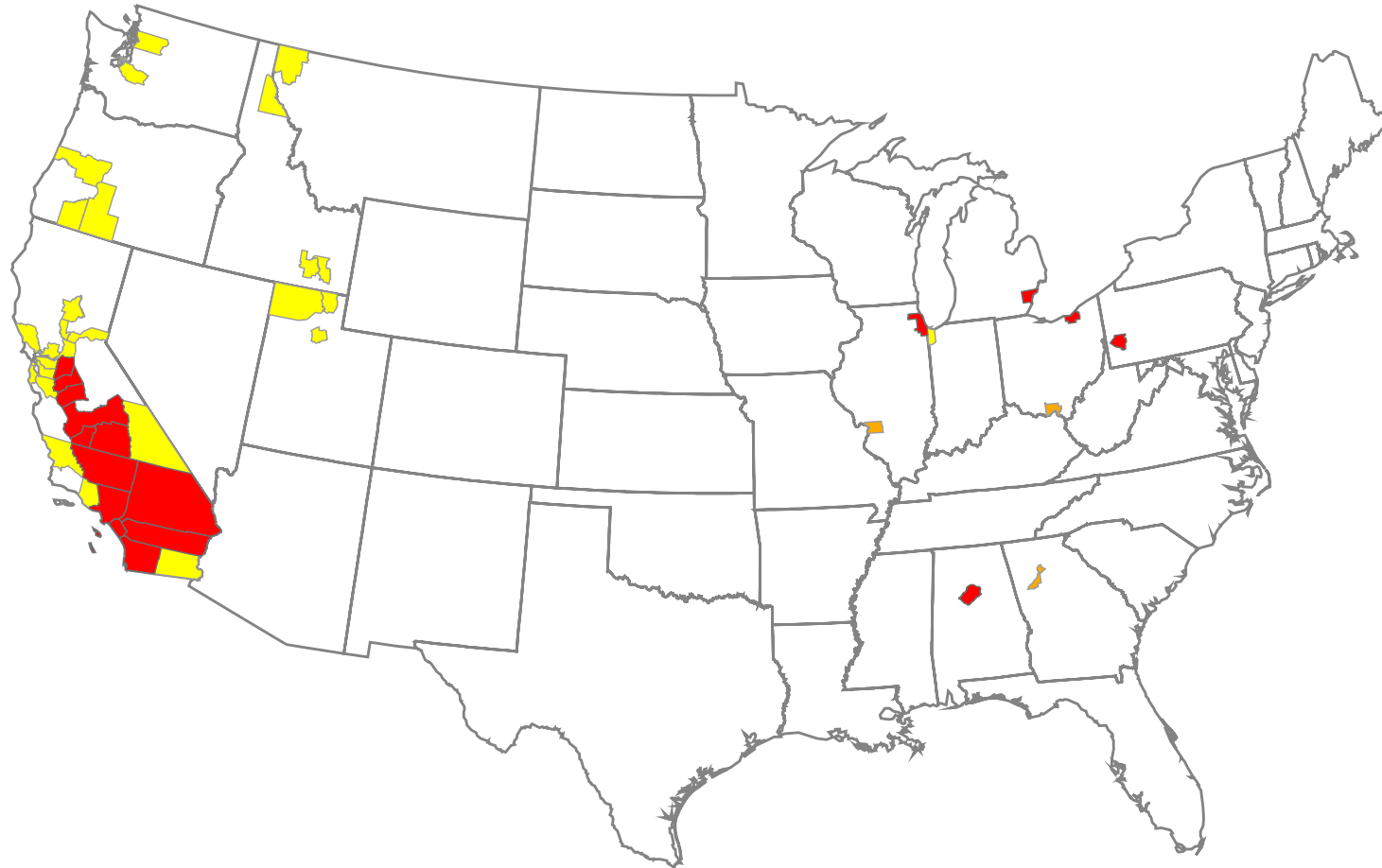
<ul style="list-style-type: none"> ■ both annual (15 µg/m³) <u>and</u> 24-hour (35 µg/m³) PM_{2.5} standards ■ ONLY the 24-hour PM_{2.5} standard (35 µg/m³) ■ ONLY the annual PM_{2.5} standard (15 µg/m³) 	<p>Number of Counties</p> <p>56</p> <p>70</p> <p>17</p>
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Total Counties Exceeding **143**

- Data from AQS 7/10/2006
- Data completeness computed per CFR 7/10/2006
- EPA will not base designations for the new fine particle standards on these data.

Counties Projected to Exceed the Revised PM_{2.5} Standards in 2020

Based on EPA Modeling*



Legend

County with monitor exceeding:

- both annual (15 µg/m³) and 24-hour (35 µg/m³) PM_{2.5} standards
- ONLY the 24-hour PM_{2.5} standard (35 µg/m³)
- ONLY the annual PM_{2.5} standard (15 µg/m³)

Number of Counties

17	
28	
30	2

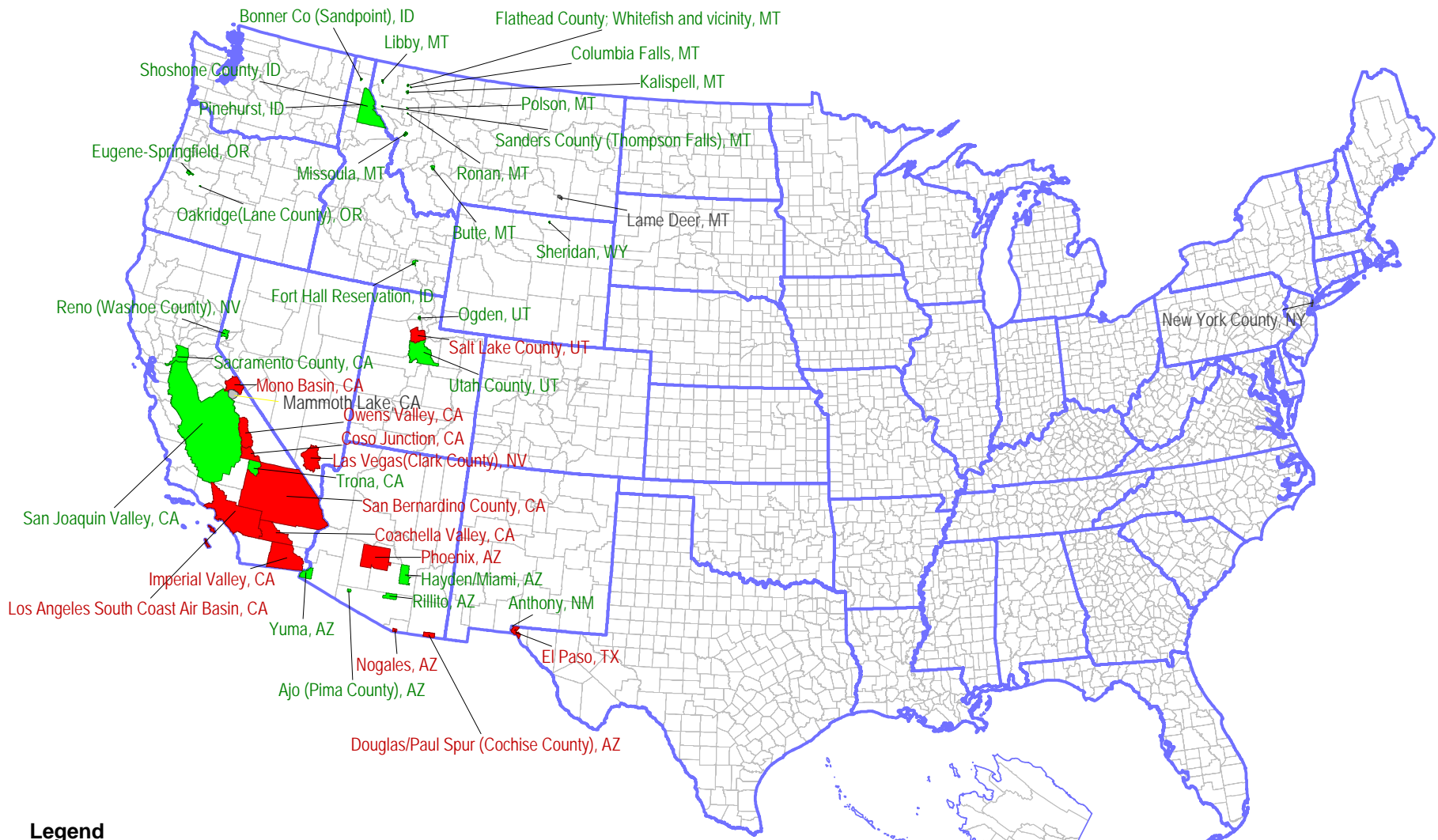
Total Counties Projected to Exceed

48

*Projections as of September 2006. EPA models assume implementation of CAIR/CAMR/CAVR, Title IV of the Clean Air Act, the NO_x SIP Call, and some existing state programs. This approach does not forecast actions states will take to meet 1997 PM_{2.5} standards.

Status of Current PM₁₀ Nonattainment Areas

Based on 2003 – 2005 Air Quality



Legend

Nonattainment areas:

- Currently violating the Pm₁₀ standards
- Meeting the PM₁₀ standards
- With incomplete data

Number of Areas

- 13
- 29
- 4

Total Nonattainment Areas 46

CAA – Mobile Sources

Specific Requirements for “Mobile” Sources

- Emission standards for cars, trucks, buses
- Reformulated gasoline/oxygenated fuels
- Renewable fuels standards
- Standards for non-road engines
(lawnmowers, locomotives, agriculture equipment, etc.)
- Vehicle inspection & maintenance programs
- Enhanced transportation conformity

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 (NSPS)
 - 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 (NSR/PSD)
 - 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 – AIR TOXICS

- List of 188 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 PM

CAA - Air Toxics

- Major Industrial Sources
(chemical plants, refineries, manufacturing, etc.)

- “Area” Sources
(dry cleaners, gas stations, etc.)

- “Mobile” Sources
(cars, trucks, buses)

Phase 1 – Emission Standards
by 11/2000

Phase 2 – Residual Risk
Standards

- Emission Standards and
Targeted
Urban Strategies

- Cleaner Fuels, Emission
Standards for Vehicles

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

AGRICULTURAL DISTINCTIONS

- Food production strategic importance
- Market concerns (price takers vs price setters)
- Weather
- Insects

AGRICULTURAL DISTINCTIONS CONT.

- Foreign competition
- Labor availability
- Profit margins (If Any?)
- High cost, seasonal equipment
- Location of operations

AIR QUALITY CONCERNS

- Particulate
- Odors
- Burning
- Engine emissions

AIR QUALITY CONCERNS CONT.

- Ammonia
- Hydrogen sulfide
- Regional haze
- VOC's

PARTICULATE

- New PM NAAQS Standard
- PM NAAQS Implementation
- PM 10 – sampler/sampling issue
- PM 2.5 - sampler/sampling issue
- Models – application issue

PARTICULATE CONT.

- Emission factors – order of magnitude errors and mis-application
- Fugitive emissions

ODORS

- AFO's
- Processing facilities
- Field operations (pesticides)
- Emission factors

BURNING

- PM
- Haze
- Visibility

ENGINE EMISSIONS

- Stationary, off-road, mobile
- Diesel rules/retrofit
- IC engine rules
- Old vs new
- Biodiesel/ethanol

AMMONIA

- AFO'S
- Emission factors
- Ag. service facilities
- Field operations?
- CERCLA/EPCRA

HYDROGEN SULFIDE

- AFO Issue

REGIONAL HAZE

- Regional implications
- International impediments
- Ag. burning

TECHNICAL CHALLENGES

- Accurate, applicable emission factors
- Accurate, applicable modeling
- Sampler calibration/correction protocol
- Enforcement actions based on sound engineering/science

TECHNICAL CHALLENGES CONT.

- Control strategies
- Systems/facility designs
- Management practices

PITFALLS

- Diversity of ag. operations
- Dispersion of ag. operations
- Urban vs rural regulatory bias
- Industry vs agriculture regulatory bias

PITFALLS CONT.

- Large vs small ag. enterprises
- Economic resources of agriculture
- Science lagging regulatory initiatives

RECENT AAQTF RECOMMENDATIONS

- Current science does not support a PM Coarse NAAQS especially for agriculture and such a standard should not be promulgated unless or until the data supports a standard.

RECENT AAQTF RECOMMENDATIONS CONT.

- The practice of using consent decrees for enforcement actions and to modify regulatory criteria should be investigated.

RECENT AAQTF RECOMMENDATIONS CONT.

- Highly reactive VOC's should be the focus of ground level ozone enforcement.
- VOC scaling factors should be used only after peer review and rule-making.

RECENT AAQTF RECOMMENDATIONS CONT.

- Emissions sources from agriculture should be defined within the context of the CAA and definitions should be established as starting points for discussions with EPA.

RECENT AAQTF RECOMMENDATIONS CONT.

- Sound engineering practices should be used in determining annual PM10 emissions from agricultural stationary sources for requiring Title V and PSD permits.

RECENT AAQTF RECOMMENDATIONS CONT.

- Particulate sampler bias issues associated with ambient concentration measurements using Federal Reference Method (FRM) samplers should be addressed by EPA.

RECENT AAQTF RECOMMENDATIONS CONT.

- National Ambient Air Quality Standards (NAAQS) should not be used as a "concentration not to exceed" at the property line for permitting and enforcement of PM emissions from agricultural sources.

RECENT AAQTF RECOMMENDATIONS CONT.

- USDA should establish an agricultural air quality program that has administrative and budgetary control over air quality research and policy.

RECENT AAQTF RECOMMENDATIONS CONT.

- Funding levels in USDA for agricultural air quality research should be increased to \$40,000,000 per year to establish a critical mass for the research program.

RECENT AAQTF RECOMMENDATIONS CONT.

- An economically viable environmental trading program for agriculture for consideration in the 2007 Farm Bill.

MAJOR ISSUES

- Implementation of the PM NAAQS (Coarse and Fine) and the economic effect on agriculture. (i.e., the sampler bias issue, placement of samplers, exclusion of crustal, PM precursors, and condensables and enforcement.)

MAJOR ISSUES CONT.

- Ozone NAAQS review, rulemaking, and implementation
- Research related to ozone produced from agriculture
- Impacts of ozone on agricultural production
- Economic effect on agriculture.

MAJOR ISSUES CONT.

- EPA enforcement actions Consent Decrees and Orders related to agriculture. (EPA use of “Consent Agreements” and “guidance” instead of going through notice and comment rulemaking on issues affecting agriculture.)

MAJOR ISSUES CONT.

- VOC measurement and scaling factors for agricultural processing interests.
- VOC regulation of animal agriculture
- VOC regulation of production agriculture practices

MAJOR ISSUES CONT.

- CERCLA/EPCRA reporting for production agriculture and animal agriculture.
- Definitions of agriculture for purposes of the Clean Air Act (and other acts)

MAJOR ISSUES CONT.

- Agricultural burning and the EPA exceptional events policy rulemaking

MAJOR ISSUES CONT.

- AFO Consent Agreement:
(Review and comment on the
AFO Consent Agreement
research results coordinated by
Purdue University.)

MAJOR ISSUES CONT.

- Greenhouse gases & global climate change: (Effects of carbon sequestration/trading on production agriculture.)

MAJOR ISSUES CONT.

- Review and recommend research priorities for intramural and extramural research at USDA.
- Recommend areas for intramural and extramural research at and with EPA and other federal agencies.

MAJOR ISSUES CONT.

- Use of consent decrees and orders to circumvent rulemaking
- Cross-media enforcement (ie hazardous waste, water, pesticide regulations)

QUESTIONS DISCUSSION

Welcome
on
Board