

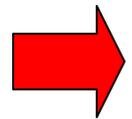


On to AQM and SIPs ...

Agenda

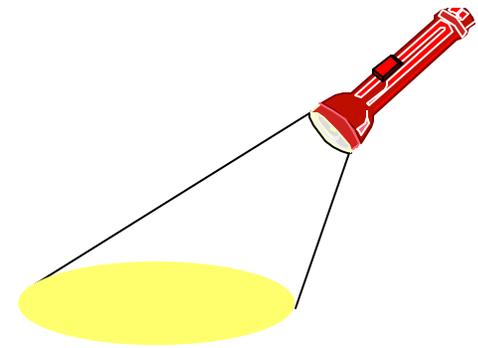
#2. History and Clean Air Act review

#3. The NAAQS



#4. Air Quality Management and the SIP / TIP processes

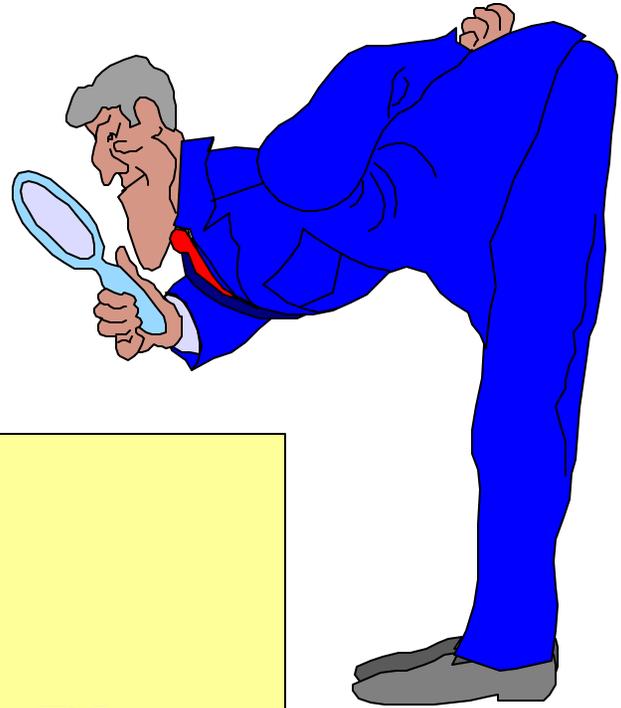
#5. Basics ... PM and Ozone science and facts



**What are the objectives for
this session... ?**

We will cover the following topics:

- 1. SIP and TIP processes***
- 2. SIP approval process***
- 3. Air quality management processes-SIP & TIP***
- 4. Gila River Tribe experience***
- 5. How various parts fit together***

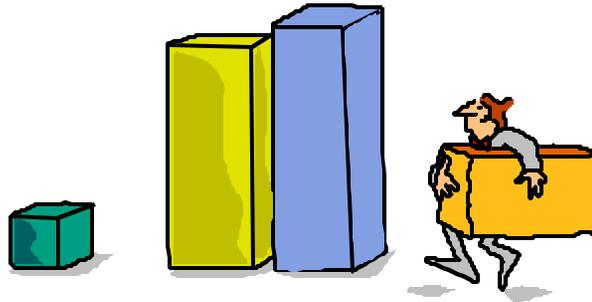


**A Quick Look
At
The State Implementation Plan
(SIP) Process**



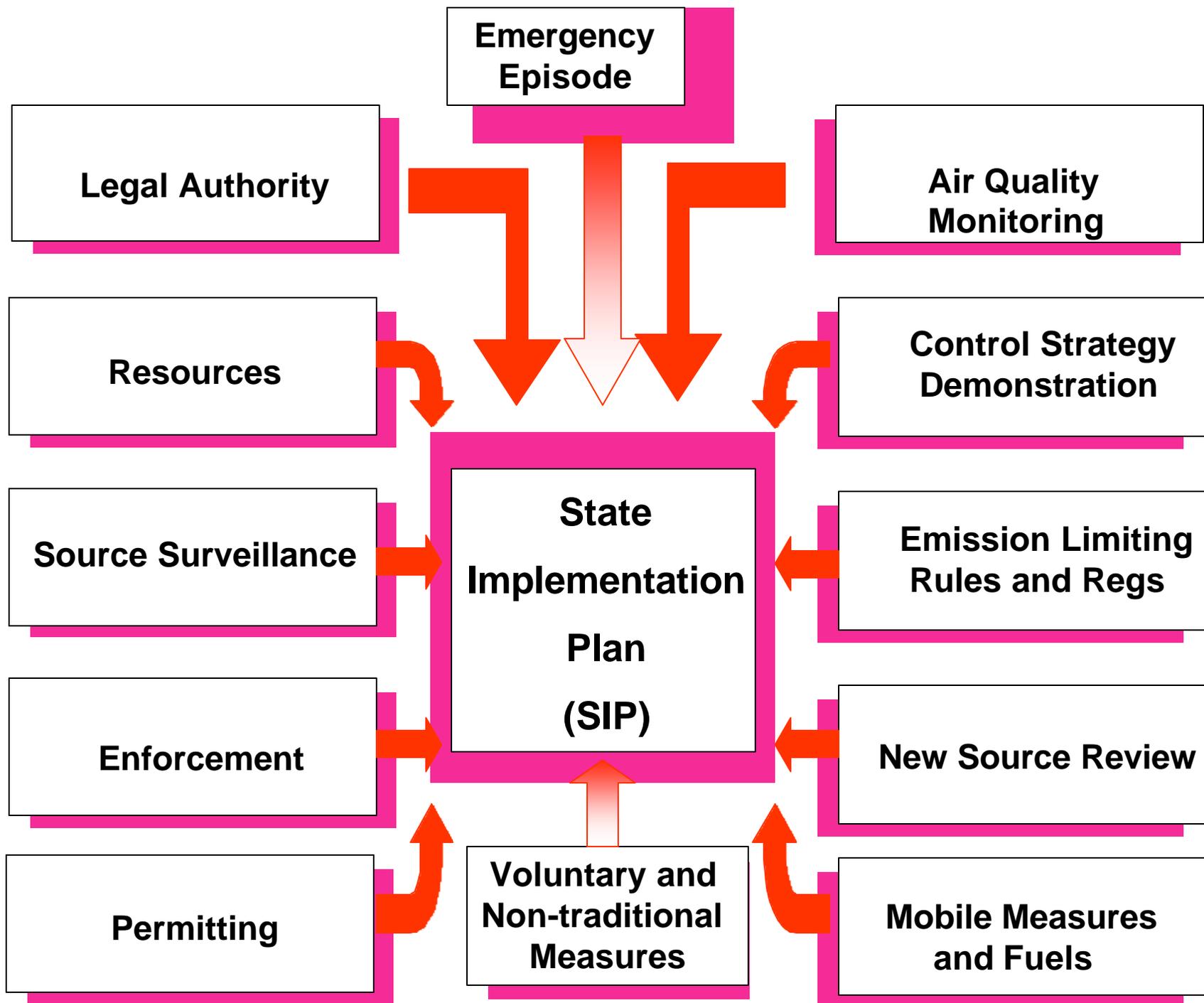
Overview

- **Content of SIPs and TIPs**
- **What guides the development and approval of SIPs?**
- **How does the SIP process actually work?**
- **What are the key differences between SIPs and TIPs**
- **Gila River Tribe**



What makes up the SIP?

**State
Implementation
Plan
(SIP)**



These constitute the “infrastructure” part of the SIP required Statewide

How does the SIP process work?

**CAA or court case mandates plan submittal,
or State/Local decides to revise its own SIP**



State/Local prepares and adopts plan after public hearing



State submits SIP to EPA Regional office



EPA reviews SIP for completeness ... if complete ... propose in CFR



EPA approves/disapproves plan after considering public comments



After SIP approval, the plan becomes Federally enforceable



If SIP Federally mandated and disapproved ... then FIP promulgated

What is the SIP Approval Process?

- **The CAA requires States to prepare and adopt SIPs and submit them to EPA**
- **EPA must either approve or disapprove a SIP or revision**
- **EPA determines whether a SIP meets the requirements of the CAA and EPA regulations**
- **EPA Regional Administrators had been delegated authority to approve most SIPs**
- **If EPA disapproves a required SIP or revision (or finds that a State failed to submit a required SIP or revision) sanctions would apply and EPA would have to prepare a federal implementation plan (FIP).**
- **Sanctions include 2:1 emission offsets for new sources and prohibition on highway funding in the nonattainment area**

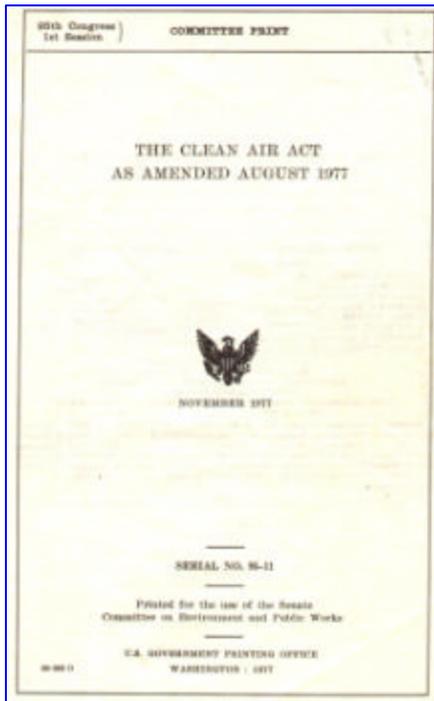
Examples:



Problems impacting the approval of SIPs ...

- **Plans that lack adequate public process/public hearing**
- **Plans that do not meet CAA or EPA rules**
- **Regulations that are vague, missing test methods, or lacking technical justifications**
- **Inadequate and incomplete modeling demonstrations**
- **Regulatory changes lacking a control strategy demonstration**
- **Excessive exemptions from CAA mandated measures**
- **Regulatory relaxations without justifications**

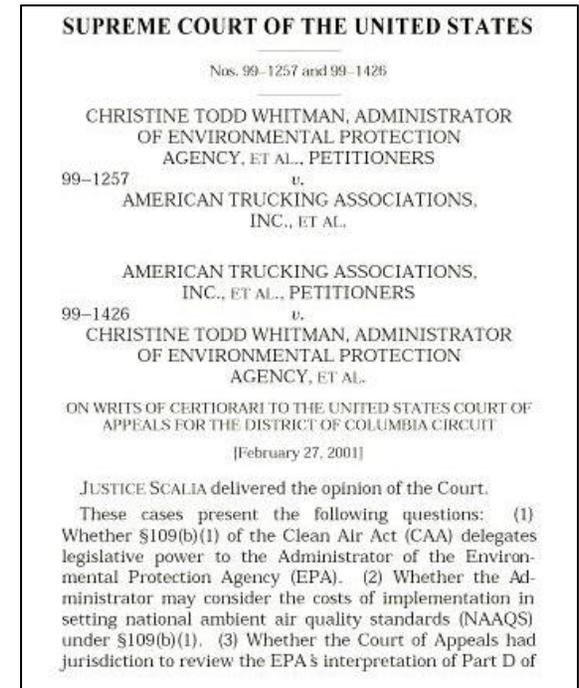
Primary requirements for developing a State Implementation Plan ...



Federal Clean Air Act



40 CFR Parts 50, 51 and 81 Regulations

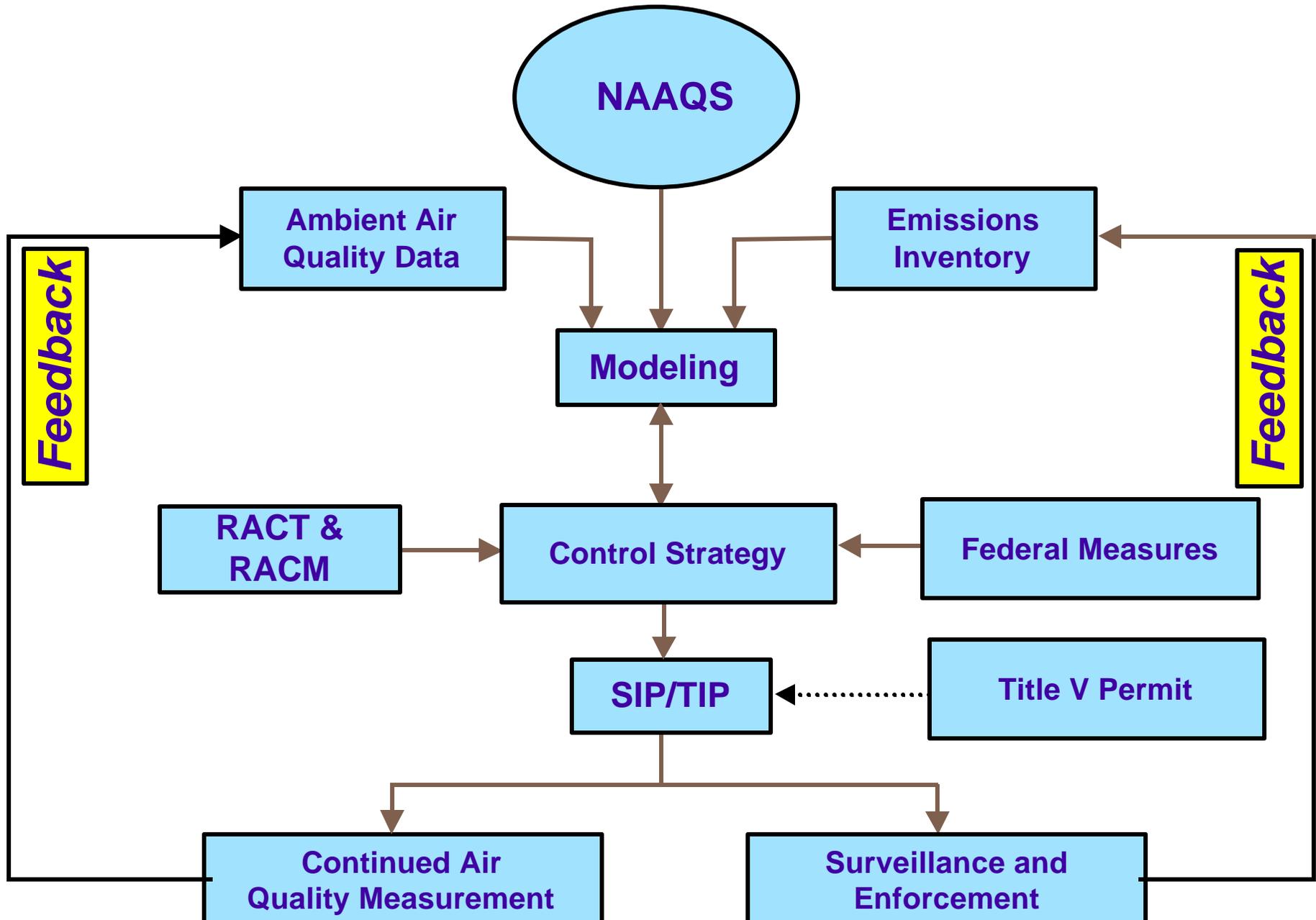


Court Decisions

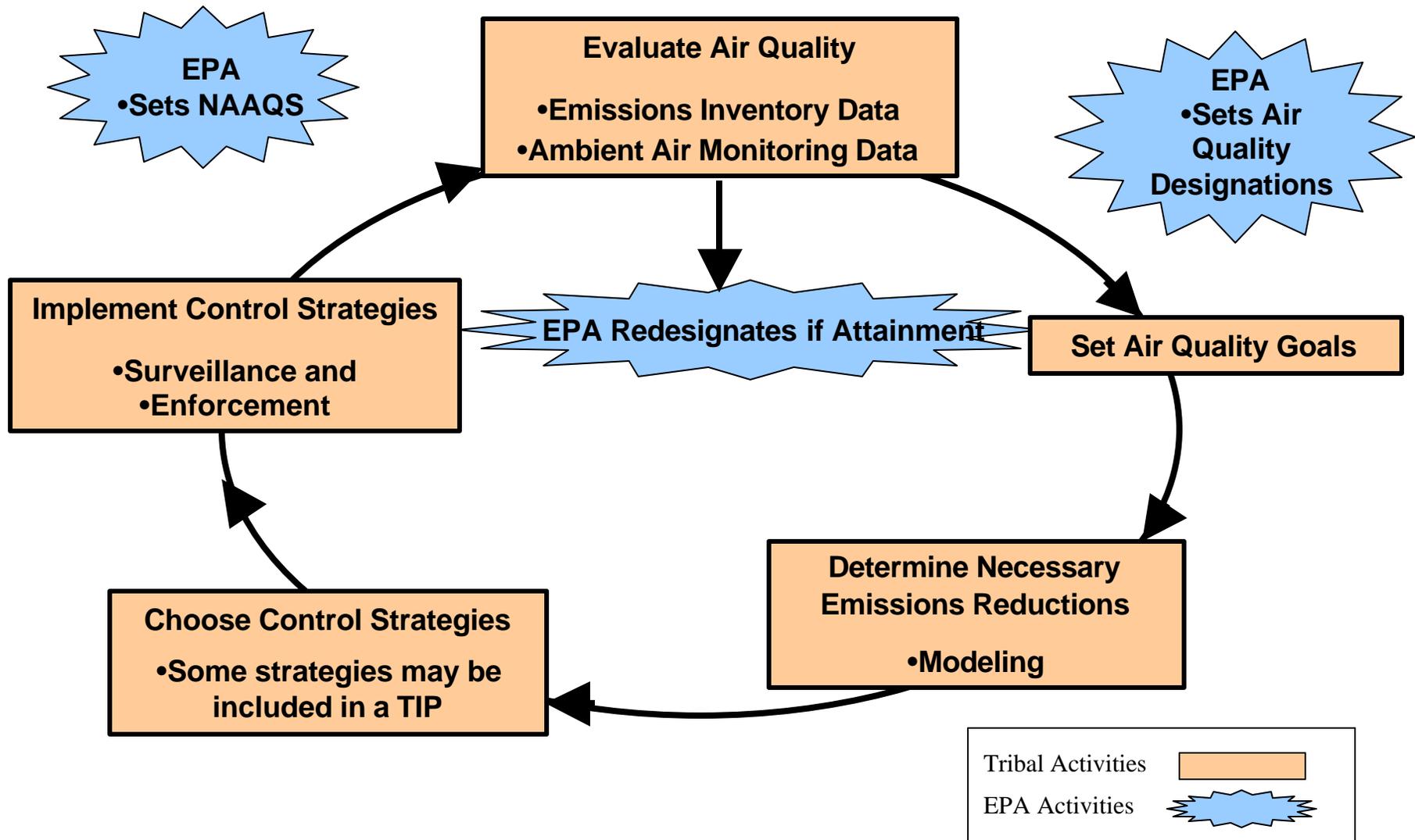
Closing points on SIPs ...

- **SIPs are a compilation of legally enforceable rules and regulations that, when implemented, will attain EPA's NAAQS. *That's the plan!***
- **EPA's approval makes these rules and regulations Federally enforceable.**

EPA's Air Quality Management Process



Tribal Air Quality Management Process



Netsite: <http://www.epa.gov/indian/map.htm>

National Map of Tribes & Regions - Netscape

File Edit View Go Communicator Help

Bookmarks Netsite: <http://www.epa.gov/indian/map.htm> What's Related

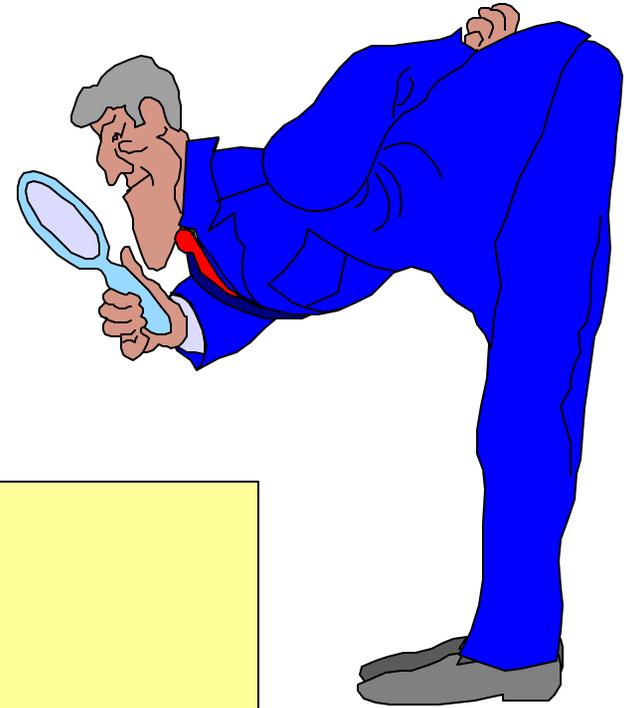
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EPA UNITED STATES ENVIRONMENTAL PROTECTION AGENCY *Office of Water*
AMERICAN INDIAN ENVIRONMENTAL OFFICE
National Map of Federally Recognized Tribes and EPA Regions

Netsite: <http://www.epa.gov/indian/map.htm>

Indian Lands

Document: Done



**Next....let's look at
SIPs and TIPs...
How are they different?
and
How are they alike?**

State Implementation Plans (SIPs)

- **States must submit plan**
- **Strict requirements**
- **EPA required to do a FIP if ...**
*State fails to submit an
approvable SIP*

Tribal Implementation Plans (TIPs)

- **Modular approach**
- **Flexibility to address own needs**
- **Joint management**
- **Concept of severability**

Common Elements of a SIP and a TIP

- **Analyze air quality problem**
- **Adopt rules**
- **Enforce**

KEY DIFFERENCES BETWEEN TIPS/SIPS
Gila River's Experience in TIP Development

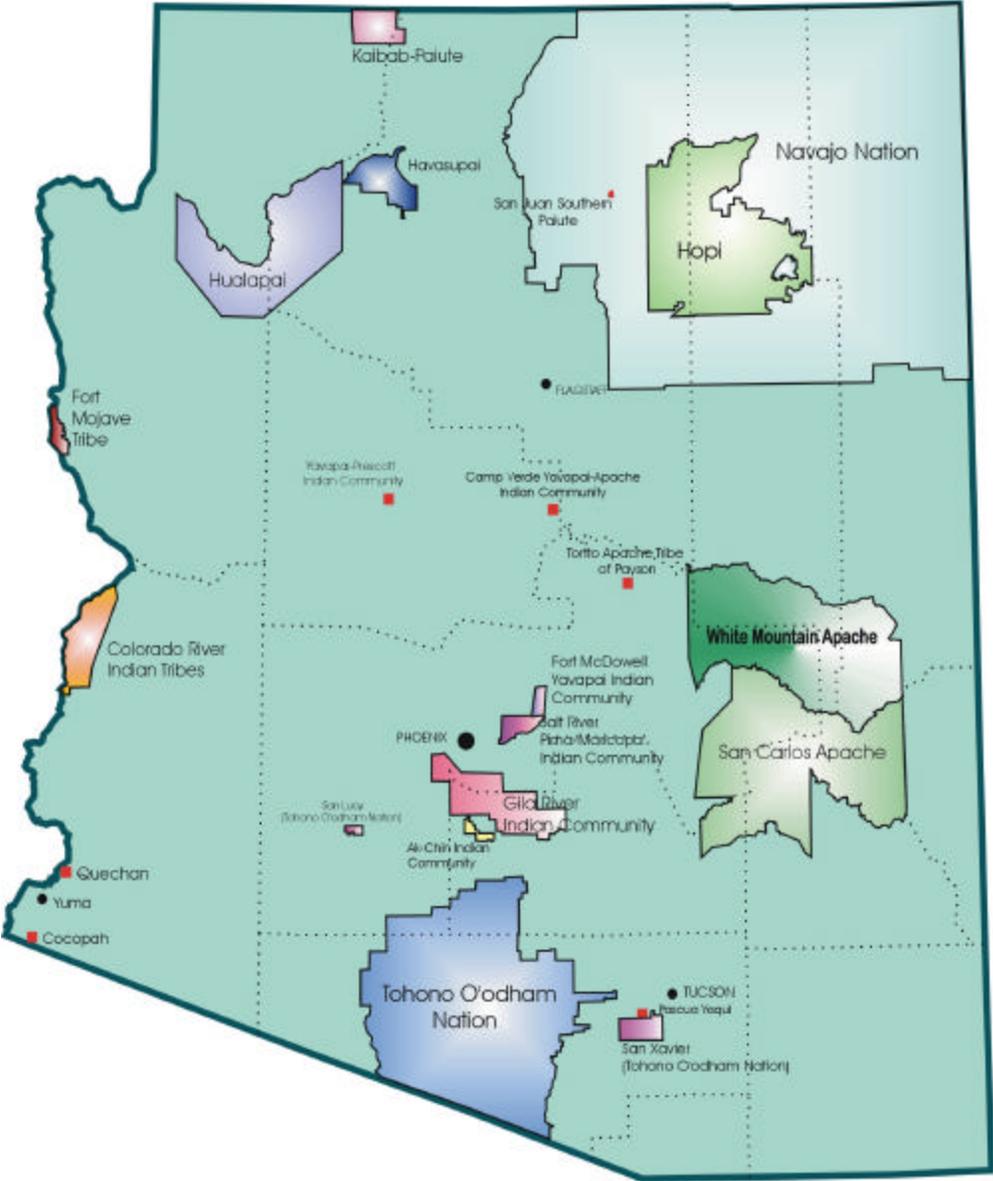
Tribal Designations and Implementation
Workgroup
Chicago, Ill.
August 23-24, 2001

Daniel Blair, Janet Travis

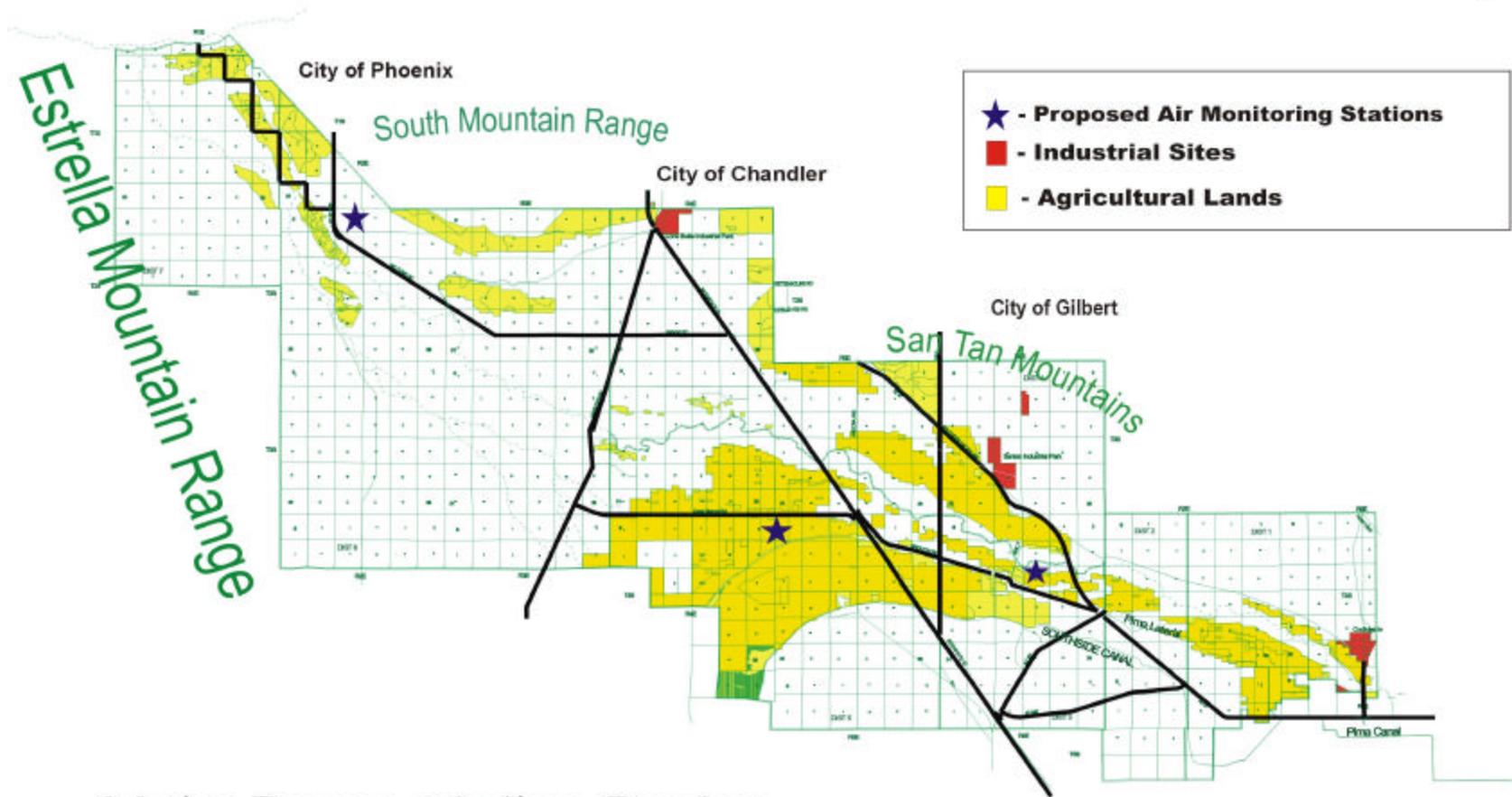
Background: Gila River Indian Community

- **Central Arizona, adjacent to Phoenix**
- **Akimel O'odham (Pima) & Pee Posh (Maricopa)**
- **Located in Maricopa & Pinal counties**
- **Established in 1859 by Executive Order**
- **374,000 acres**
- **Population 13,500 people (on reservation)**

Indian Reservations in Arizona



Gila River Indian Community



Major Transportation Routes

Industrial Facilities

- **Three industrial parks, 45 businesses & industries**
- **Other GRIC-Area Sources**
 - **40,000 agricultural acres**
 - **Acreage will increase to 140,000 over next 10 years**
 - **Interstate 10 bisects Community (largest source of air pollution)**

GRIC Air Quality Program *Accomplishments*

- **Needs assessment (identify sources, need for air program)**
- **Emissions Inventory**
- **Applied for and received eligibility determination (TAS)**
- **Applied for and received 105 grant funding**

GRIC Air Quality Program Accomplishments ... *(Continued)*

- **Submitted proposal and received funding to develop monitoring network**
- **Submitted designation recommendation under revised NAAQS (8-hour ozone)**
- **Currently developing a comprehensive TIP**

Key TIP Elements

- **Permitting Program**
- **Legal Authorities**
- **Compliance Inspection Program**
- **Dust Control Program**
- **Public Notice/Comment Process**
- **Synthetic minor permitting program**

Key TIP Elements

(Continued)

- **GRIC will not initially develop a pre-construction NSR program**
- **GRIC will develop a Non-TIP Title 5 Operating Permit program and may develop a PSD program**

Differences Between TIPs and SIPs

- **Tribes have option to manage air quality or rely on EPA**
- **Flexibility**
- **Timelines**

Unforeseen discrepancies between SIPs and TIPs

- **Do Tribes have equal status to regulate Air Quality?**
 - **Designations not based on Rez. Boundaries**
 - **Practical enforceability (emission limits)**
 - **Difficult/impossible for Tribes to get offsets**
 - **States using tribal lands to dilute pollutant concentrations in modeling domain**

Unforeseen discrepancies between SIPs and TIPS ... *(Continued)*

- **In a round about way states have control over tribes (eg. offsets, economic development etc.)**
- **Tribes have no control over transport from neighboring jurisdictions**
- **EPA using large area around violating state/local monitors as basis for Tribal designations (# miles ?)**

Unforeseen discrepancies between SIPs and TIPs ... *(Continued)*

- **Tribes are not being treated in the same manner as states for the purpose of designations/redesignations (Examples)**



What did we learn ... ?

- 1. The SIP and TIP processes**
- 2. Introduced the models showing the various parts of the air quality management and TIP processes and how they relate to one another**
- 3. Key differences between SIPs and TIPs**

Let's move on to Session 5 ...



The Basics ...

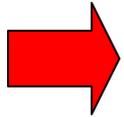
Ozone and PM science and facts



Next ... the NAAQS

Agenda

#2. History and Clean Air Act review



#3. The NAAQS

#4. Air Quality Management and the SIP/TIP processes

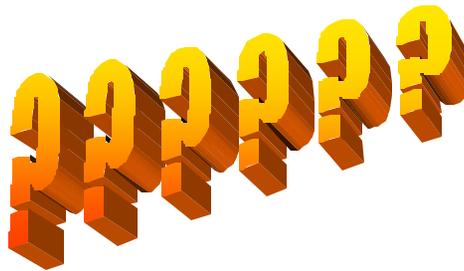
#5. Basics ... PM and Ozone science and facts

Session # 3



The NAAQS themselves. . .

- *Process for establishing*
- *5-year review*
- *PM NAAQS (PM_{10} & $PM_{2.5}$)*
- *Differences—1hr & 8 hr O_3 NAAQS*



**What are the objectives for
this session... ?**

We will cover the following topics:

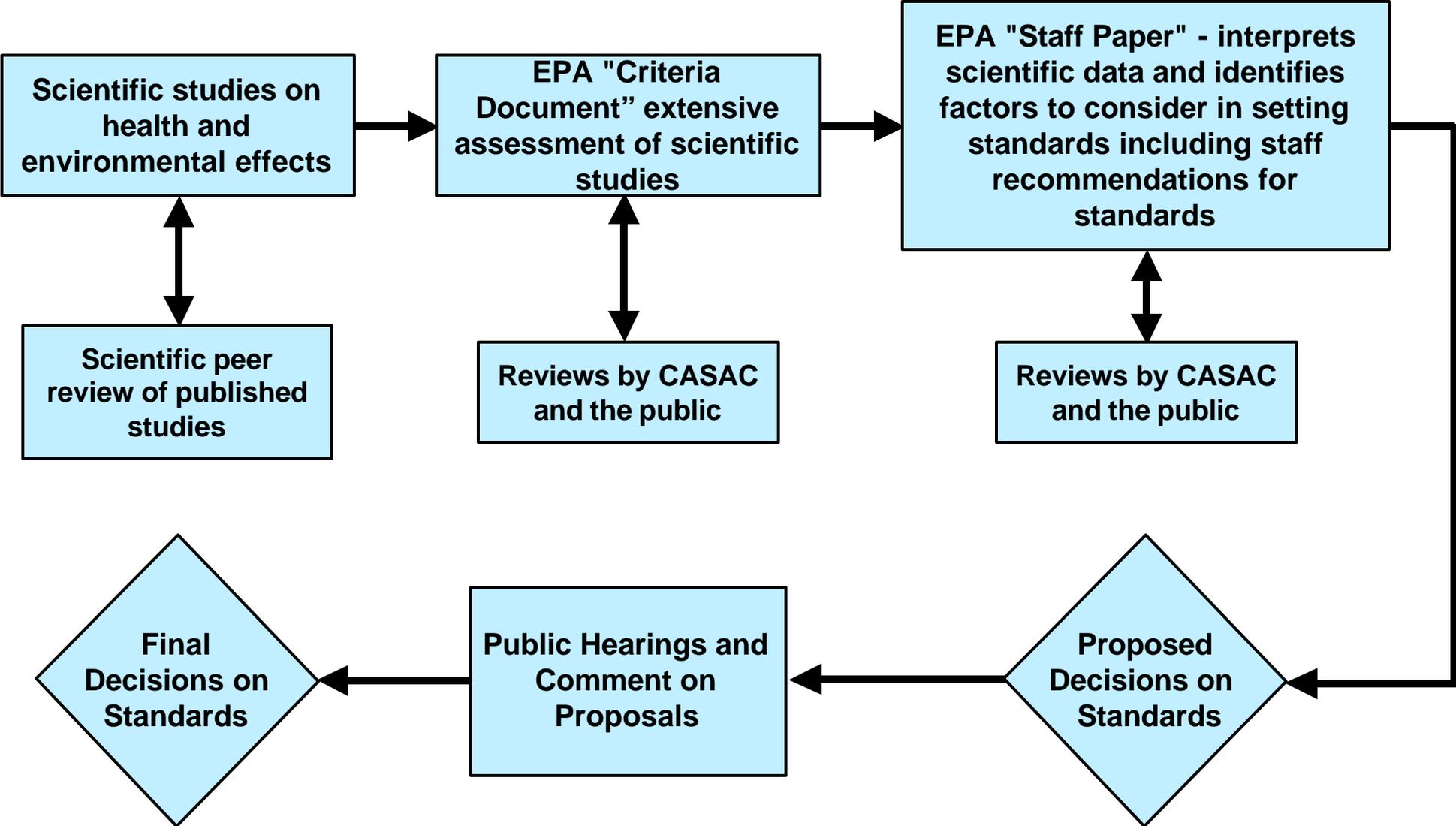
- 1. *Process for establishing***
- 2. *5-year review***
- 3. *PM NAAQS (PM10 & PM2.5)***
- 4. *Differences in form—1hr & 8 hr O3 NAAQS***

Background on the standard setting process ...

Overview of NAAQS Reviews

- **National ambient air quality standards (NAAQS) for "criteria" pollutants**
 - "**Primary**" standards to protect public health with an adequate margin of safety;
 - "**Secondary**" standards to protect public welfare and the environment
- **NAAQS set for: ground-level ozone (smog), particulate matter measured as PM₁₀, carbon monoxide, lead, nitrogen dioxide, sulfur dioxide**
- **The Act requires EPA to review these standards every five years**

Review Process for NAAQS

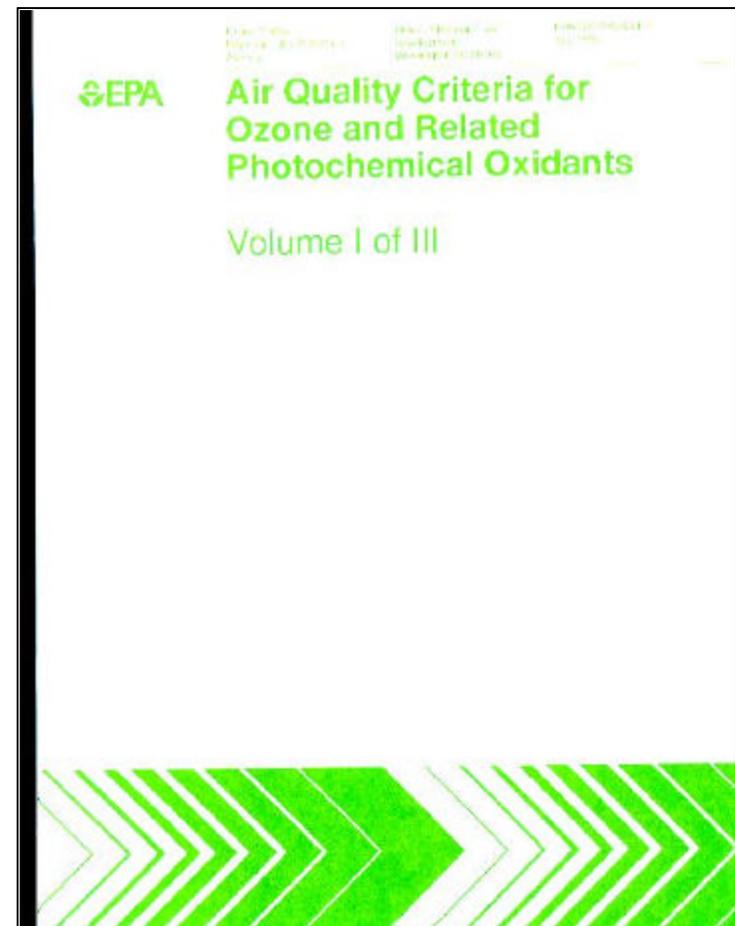
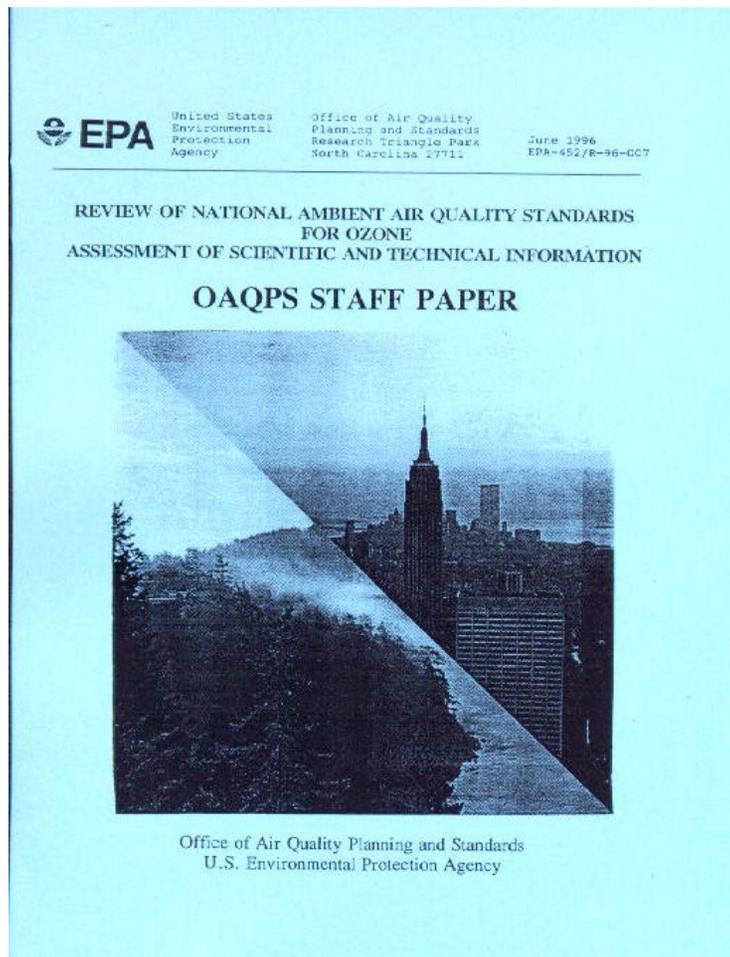


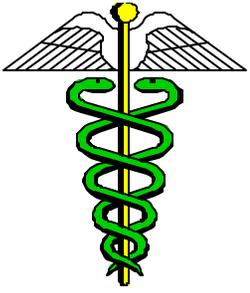
Projected Schedule for Next Review of Ozone NAAQS

- **Review initiated by Office of Research and Development in September 2000 with a call for information**
 - **Next step is to present plan for preparation of the Criteria Document to CASAC – perhaps later this year**
- **Preparation/review of the Criteria Document optimistically projected for 2002-2003**
 - **Much of the new science on ozone health effects may have already been reviewed as part of the ongoing review of the NAAQS for particulate matter**
- **Preparation of Staff Paper may follow as early as 2003-2004**
- **Proposal and final decision on standards may follow as early as late 2004-2005**

Location of Ozone Criteria Document and Staff Paper

www.epa.gov/ttn/oarpg/t1cd.html





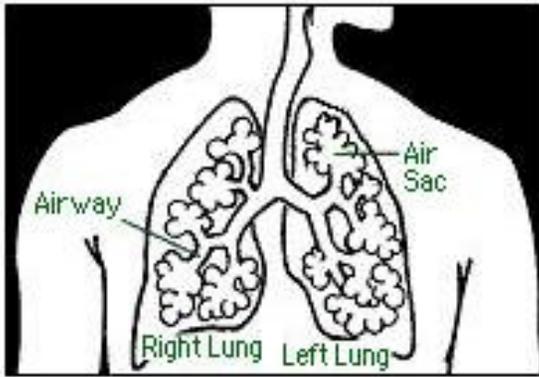
Different Considerations Used in Setting and Achieving NAAQS

Setting the Standards

- Health Effects
- Environmental Effects

Achieving the Standards

- Costs
- Time to attain the standards



PM Primary Standards

- **Promulgated July 18, 1997 (62 FR 38651)**
- **Based on Health Impacts**
- **New PM_{2.5} standards**
 - Established as indicator for fine fraction
 - Mortality and morbidity effects observed at levels below previous standards
- **PM₁₀ standards**
 - Retained as coarse fraction indicator
 - Revised form of the standard
 - Linked to effects such as aggravation of asthma

Health Effects ... PM

PM₁₀

- Accumulates in lungs
- Contributes to:
 - Damaged lung tissue
 - Decreased lung function
 - Aggravated asthma

PM_{2.5}

- Penetrates deeply into lungs
- Contributes to:
 - Acute respiratory symptoms
 - Increased hospital visits
 - Increased frequency in childhood illness such as chronic bronchitis
 - Premature death

Children, asthmatics, elderly and individuals with pre-existing cardiovascular & respiratory illness are especially sensitive populations

PM₁₀ Standard

Original
1987 PM₁₀
Standard

- **Promulgated July 1, 1987 (52 FR 24634)**
- **Based on review and revision of the criteria and on Health Impacts .. the final rule:**
 - **Replaced TSP as the indicator for Particulate Matter for the ambient standard with a new indicator that includes only those particles with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM₁₀),**
 - **Replaced the 24 hour primary TSP Standard with a 24 hour PM₁₀ Standard of 150 ug/m³ with no more than one expected exceedance per year,**

PM₁₀ Standard

Original
1987 PM₁₀
Standard

- **1987 PM₁₀ Standard ... (continued)**
 - **Replaced the annual primary TSP Standard with a PM₁₀ Standard of 50 ug/m³ expected annual arithmetic mean,**
 - **Replace the Secondary TSP Standard with 24-hour and annual PM₁₀ Standards that are identical in all respects to the primary standards.**

PM₁₀ Primary Standard

Original
1987 PM₁₀
Standard

Averaging Time	Level (mg/m ³)	Form
24-hour	150	with no more than one expected exceedance per year.
Annual	50	

Original 1987 PM₁₀ Standard ... References

Original
1987 PM₁₀
Standard

Reference Information:

- **Federal Register 52 FR 24634, July 1, 1987 Promulgated the original PM₁₀ Standard modifying 40 CFR Parts 50, 51, 52, 53, & 58.**
- **However, there were 6 later FR corrections, for reference they are:**
 - **July 14, 1987 (52 FR 26401, 26402)**
 - **July 20, 1987 (52 FR 27286)**
 - **July 24, 1987 (52 FR 27902)**
 - **August 7, 1987 (52 FR 29382 - 29386)**
 - **August 7, 1987 (52 FR 29467)**
 - **August 21, 1987 (52 FR 31701)**

PM_{2.5} Primary Standards

Averaging Time	Level (mg/m³)	Form
24-hour	65	At each site, calculate the 98th percentile for the year. Average the 98th percentiles for 3 years.
Annual	15	At each site, calculate the annual mean from 4 quarterly means. Then average the annual means for 3 years.

PM_{2.5} Primary Standard Rounding Convention



- **Annual PM_{2.5} Standard**
 - 15.04 rounds to 15.0
 - 15.05 rounds to 15.1 (*first value above the standard*)
- **24-Hour PM_{2.5} Standard**
 - 65.4 rounds to 65
 - 65.5 rounds to 66 (*first value above the standard*)



Purpose of Primary PM_{2.5} Standards

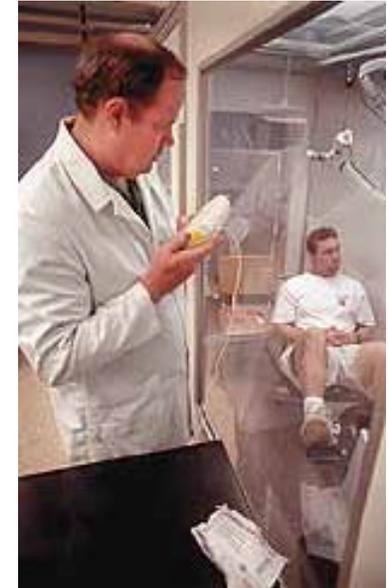
- **Annual standard**
 - Total annual risk associated with short-term exposures results from days when the PM levels are in the low- to mid-range (not peaks)
 - Lowering PM_{2.5} concentrations through an annual standard is the best way to reduce total PM_{2.5} risk
- **24-hour standard**
 - Protects against exposure on days with ...
 - High PM_{2.5} levels
 - Localized "hot spots"
 - Seasonal emissions (wood smoke in winter)

Welfare Based Standards



- **PM secondary standards are identical to primary standards**
- **PM_{2.5} and PM₁₀ standards combined with regional haze program will protect against major PM-related welfare effects:**
 - **Visibility impairment**
 - **Materials damage**

Next Review of PM Standards



1997

October: EPA developed plan and schedule for review of criteria and standards

2002

July: EPA determines whether to revise or maintain standards

Standards review will precede designation of PM 2.5 nonattainment areas and imposition of new controls

Location of new PM Criteria document and draft staff paper ...

Netsite: <http://www.epa.gov/ttn/oarpg/new.html>

Date	Action	Category
6-13-01	Particulate Matter: Preliminary Draft Staff Paper: Fact Sheet	NAAQS (Title I) Fact Sheets
6-13-01	Particulate Matter: Preliminary Draft Staff Paper: Chapters 1-5, Appendices A and B	NAAQS (Title I) Staff Papers
6-13-01	Particulate Matter: Preliminary Draft Staff Paper: Visibility Images (Chap 5) (Additional files containing higher-resolution images will be available here by June 22)	NAAQS (Title I) Staff Papers
6-13-01	Particulate Matter: Preliminary Draft Staff Paper: Fact Sheet	NAAQS (Title I) Fact Sheets

would like to download. The document may be available in one or more file formats, as indicated on the side of the listing. Click on the icon that represents the format you wish to receive.

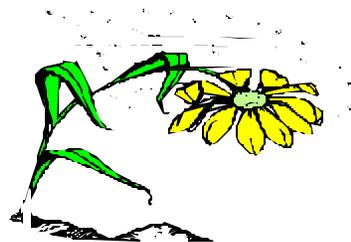
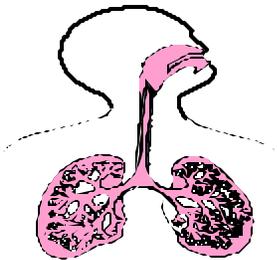
For more information on file format icons, standard file formats, and how to use them, see the [TTNWeb File Types](#)

File Description	File Date	File Types
Particulate Matter: Draft Criteria Document EXIT	6-13-01	
Ozone AQCD -- Cover, Vol 1, WP6	10-10-96	
Ozone AQCD -- Cover, Vol 2, WP6	10-10-96	
Ozone AQCD -- Cover, Vol 3, WP6	10-10-96	
Ozone AQCD -- Fact Sheet, Volume 1, WP6	10-10-96	

What is the 1-Hour National Ambient Air Quality Standard for Ozone?

**0.12 PPM...1-hr average;
expected exceedance rate; 3-year compliance period**

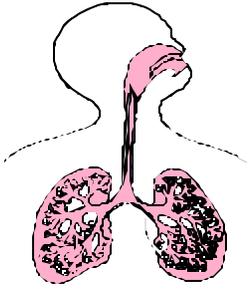
- *Established to protect public health & welfare*
- *Standards apply to "outside" or ambient air*





What is the New 8-Hour Ozone NAAQS?

The ***New Ozone NAAQS*** is an 8-hour standard at the ***level*** of ***0.08 ppm*** (parts per million) with a ***form*** based on the ***3-year average of the annual 4th highest daily maximum 8-hour average Ozone concentrations*** measured at each monitor within an area.

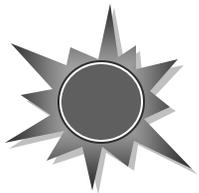


Ozone-Related Health Effects of Concern

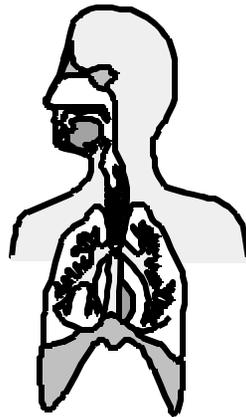
- ▶ **Difficulty in breathing, shortness of breath**
- ▶ **Aggravated/prolonged coughing and chest pain**
- ▶ **Increased aggravation of asthma, susceptibility to respiratory infection resulting in increased hospital admissions and emergency room visits**
- ▶ **Repeated exposures could result in chronic inflammation and irreversible structural changes in the lungs, that can lead to premature aging of the lungs and illness such as bronchitis and emphysema**
- ▶ **Growing evidence suggests association with premature death**



Nitrogen Oxides: Impacts on Public Health and the Environment



Stratospheric
Ozone
Depletion



Ozone,
Particulate
Matter, and
Nitrogen
Dioxide



Acid
Deposition



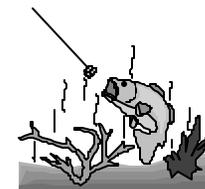
Global
Warming



Visibility,
Drinking Water
and
Ecosystem
Protection

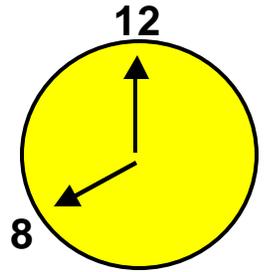
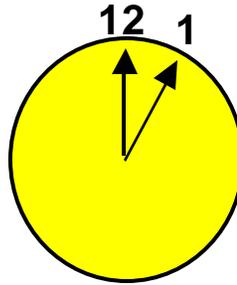


Toxic
Products

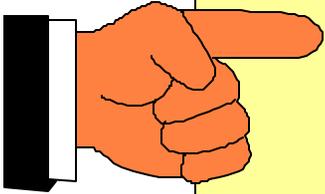


Eutrophication

FORM OF O3 NAAQS



Form of Standard	1-hr NAAQS	8-hr NAAQS
Avg time	1-hour	8-hour
Level	0.12 ppm	0.08 ppm
Form	exceedance-based	concentration-based
Air Quality Indicator	daily max 1-hr conc within day	daily max 8-hr conc starting within day
NAAQS Statistic	annual estimated exceedances	annual 4th high 8-hr daily max conc
Rounding	0.125 ppm--smallest number greater than the 0.12 ppm NAAQS level	0.085 ppm--smallest number greater than 0.08 ppm NAAQS level
Compliance period	three consecutive years	three consecutive years
Attainment Test	avg expected exceed'c rate ≤ 1.0	avg annual 4th high daily max 8-hour conc ≤ 0.08 ppm



What did we learn ... ?

- 1.** EPA required to review/confirm/revised NAAQS every 5 years through a process of reviewing new effects data.
- 2.** Cost cannot be considered in setting the level of the standard; cost can be considered in implementation
- 3.** The PM_{2.5} standard—form & level
- 4.** The PM_{2.5} standard—schedule for review
- 5.** The 1-hr Ozone Standard: 0.12 ppm set to protect public health and welfare
- 6.** The 8-hr ozone standard: 0.08 ppm also set to protect public health and welfare
- 7.** Form of 1-hr and 8-hr O₃ NAAQS different



Now let's move to Session 4

**Air Quality Management and the SIP
& TIP processes**

Session # 7



***Nonattainment Areas & Implementation ...
Status & Anticipated Activities***

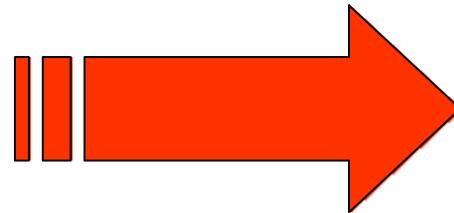
What are the objectives for this session... ?

We will cover nonattainment status & implementation for the following:

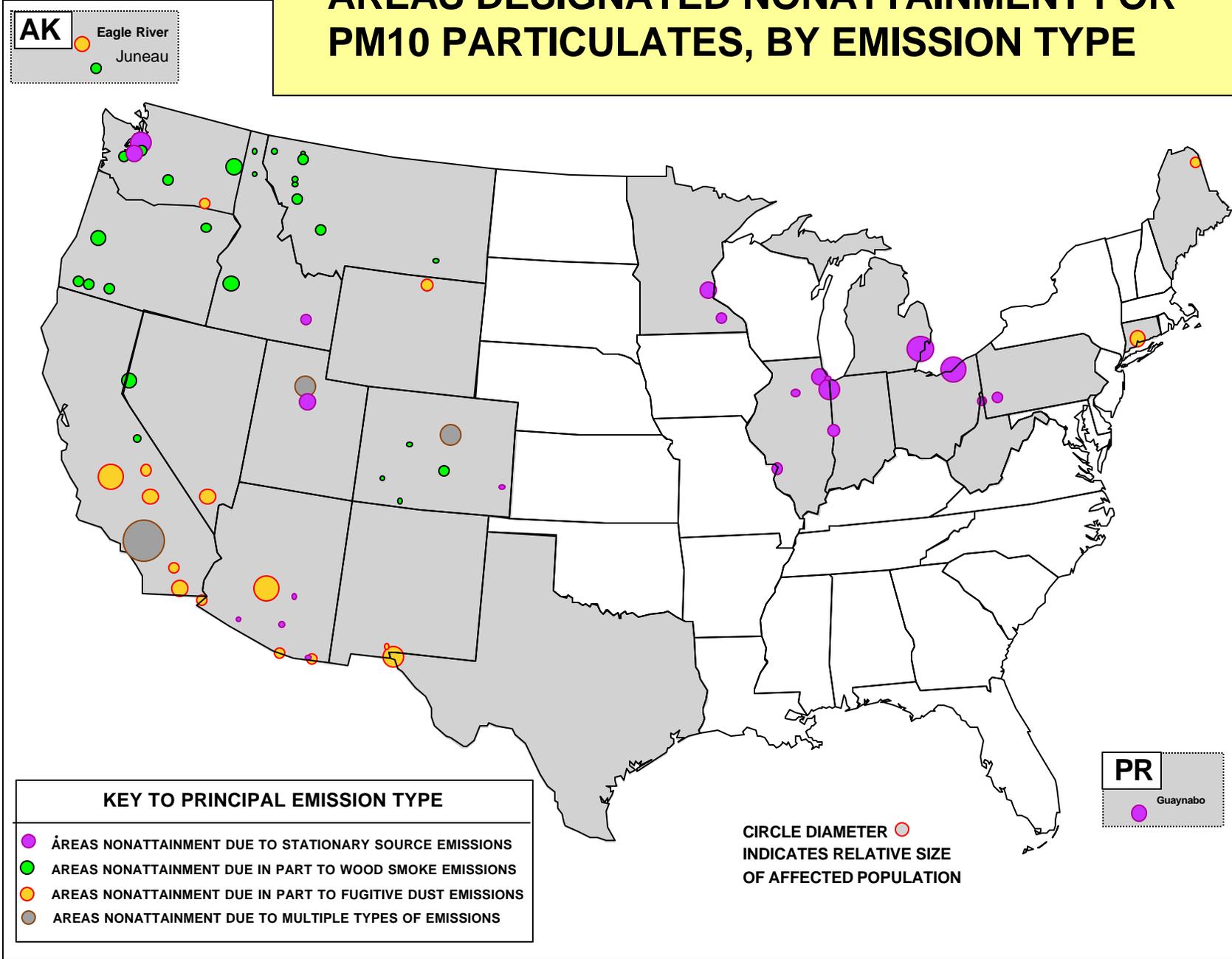
- **PM₁₀ standard**
- **PM_{2.5} standard**
- **1-hr ozone standard**
- **8-hr ozone standard**

What is the status of PM10 NAAQS Nonattainment Areas?

Let's look



AREAS DESIGNATED NONATTAINMENT FOR PM10 PARTICULATES, BY EMISSION TYPE



**How is the PM₁₀ NAAQS
implemented?**

PM₁₀ Subpart 4

Section 188 Classifications and Attainment Dates

- **188 (a) Initial classifications**
- **188 (b) Reclassification as serious**
 - **Before moderate area attainment date**
 - **Upon failure to attain**

Section 188 Classifications and Attainment Dates *(Continued)*

- **188 (c) Attainment dates**
 - **Moderate areas**
 - **Serious areas**
- **188 (d) Extension of attainment date ... moderate areas**
 - **Apply for one-year extension if...**
 - **2 one-year extensions allowed**

Section 188 Classifications and Attainment Dates

(Continued)

- **188 (e) Extension of attainment date for serious areas**
 - Apply for extension if...
- **188 (f) Waivers for certain areas**
 - If sources do not contribute to violations.
 - If sources contribute to violations

Section 189 Plan provisions and schedules for plan submissions

- **189 (a) Moderate areas**
 - SIP due 18 months of designation
 - RACM implemented 4 years after designation
- **189 (b) Serious areas**
 - SIP due 4 years or 18 months from reclassification depending on why the area is reclassified
- **189 (c) Milestones**
 - Quantitative milestones
 - Due 90 days after milestone completion
 - Sanctions

Section 189 Plan provisions and schedules for Plan submissions *(Continued)*

- **189 (d) Failure to attain**

- **5% reduction per year until area attains**
- **SIP revisions due 12 months after attainment date.**

- **189 (e) PM₁₀ precursors**

- **Make finding that precursors contribute to the PM₁₀
N/A problem**
- **Control requirements applicable will also apply to
PM₁₀ precursors.**

Section 190 Issuance of RACM and BACM Guidance

- **RACM :**
 - Existing sources in attainment areas
 - Sources that are reasonable to control.

- **BACM :**
 - Optimizing control of emissions
 - Builds on RACM and contingency measures
 - Maximum degree of emission reduction
 - Analysis independent of area's attainment needs
 - Case-by-case determination
 - Preventive measures preferable
 - Applies to all sources N/A unless source does not contribute significantly to nonattainment

Section 190 Issuance of RACM and BACM Guidance ... (Continued)

- **Within 18 months of enactment issue RACM and BACM guidance for:**
 - **Urban fugitive dust**
 - **Residential wood combustion**
 - **Prescribed burning**
- **3 Technical Information Documents**
- **Serious Area Policy**
- **General Preamble to Title 1**
- **PM₁₀ SIP Development Guideline**

PM Policies and Guidance Reference

- **Serious Area Policy**
 - 59 FR 41998 8/16/94
- **General Preamble to Title 1**
 - 57 FR 13498 4/16/92
 - 57 FR 18070 4/28/92 - Appendices
 - OAR Rules, Policy, and Guidance:

www.epa.gov/ttn/oarpg/t1pfpr.html

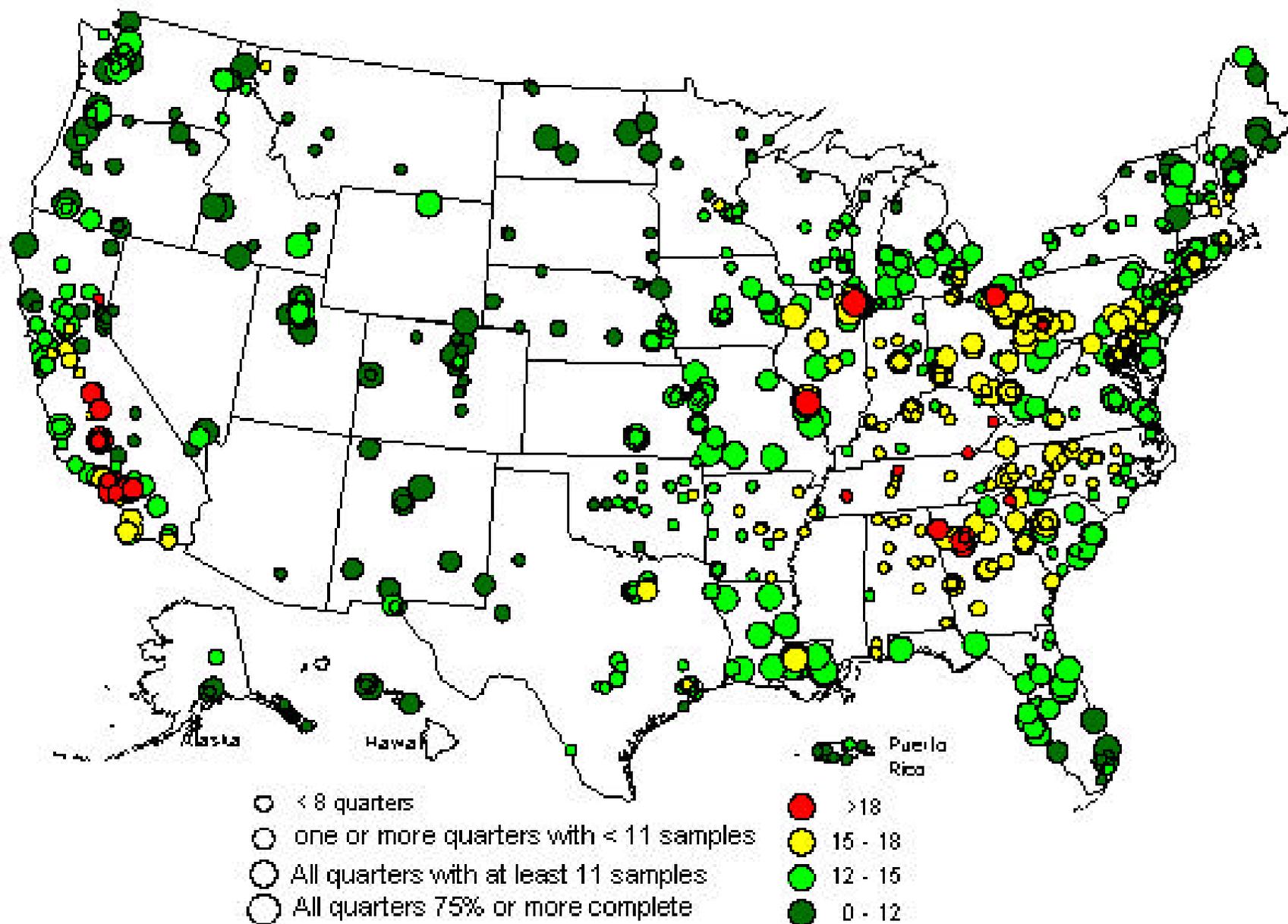
- **PM₁₀ SIP Development Guideline**
 - EPA-452/R-93-008

What is the status of PM_{2.5} NAAQS concentrations?



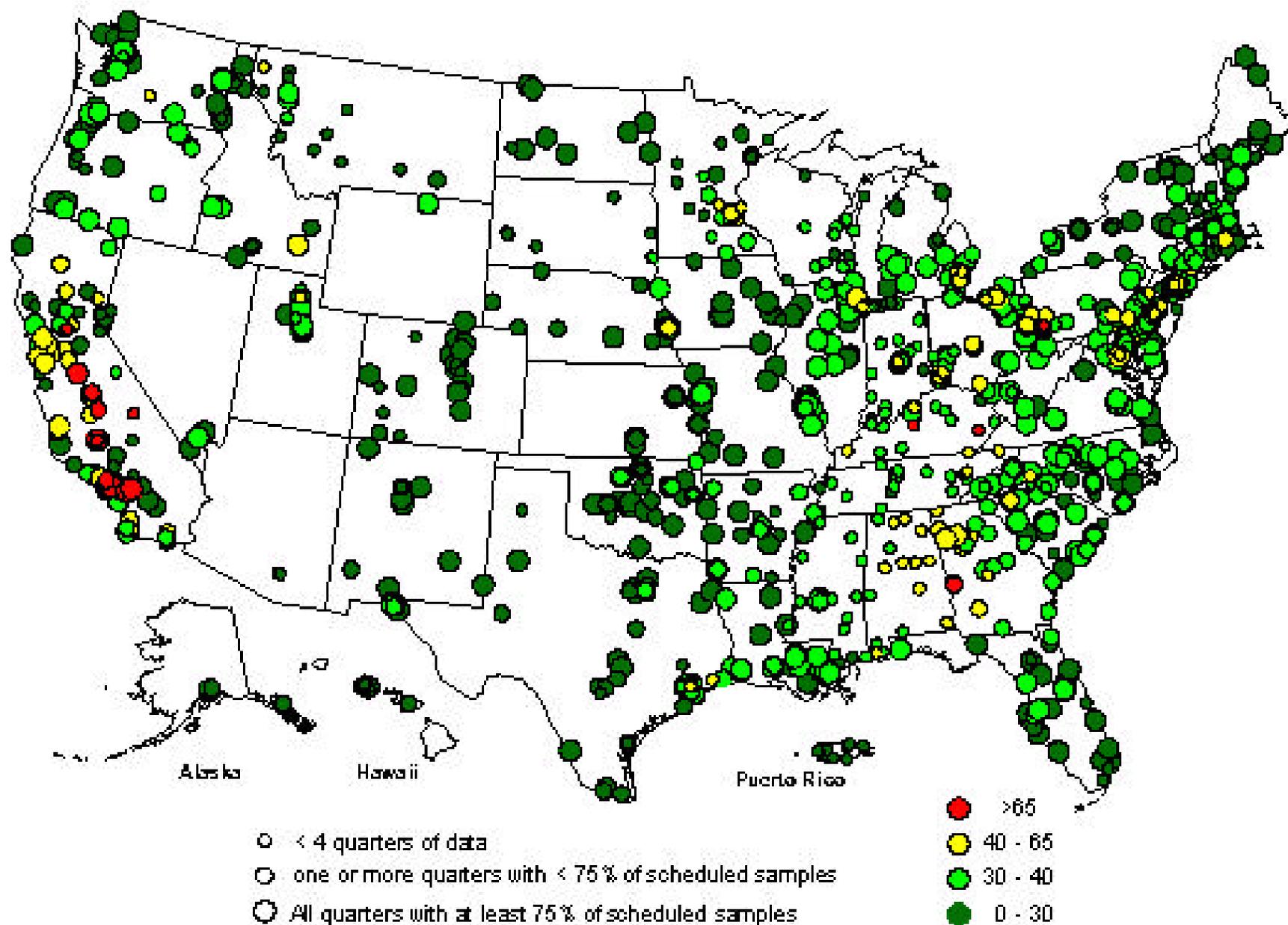
Let's look

1999-2000 Average Annual Mean PM_{2.5}



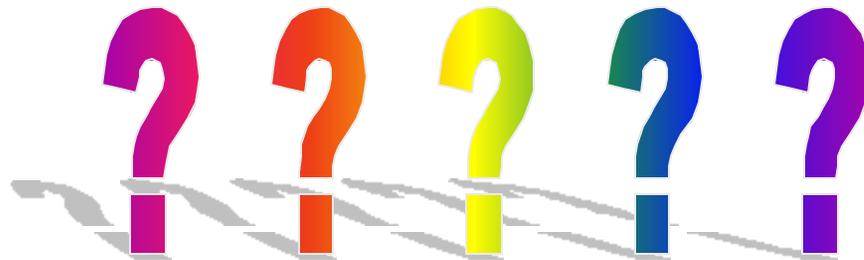
Source: US EPA AIRS Data base as of 4/12/01 without data flagged as 1, 2, 3, 4, T, W, Y, or X

2000 98th Percentile 24-hour Average PM_{2.5} Concentrations (µg/m)



Source: US EPA AIRS Data base as of 4/12/01 without data flagged as 1, 2, 3, 4, T, W, Y, or X

What is the status of PM_{2.5} NAAQS implementation?



Presidential Directive

Per the Presidential Directive EPA plans to:

- **Encourage states to work with neighboring states to analyze regional strategies**
- **Encourage economic incentives approach (such as cap-trade programs) if further cost-effective regional reductions help area meet standards**
- **Support coordination between the states in developing a PM_{2.5} control strategy and improving regional visibility**

Presidential Directive

(Continued)



Full implementation of the acid rain program (between 2000 and 2010) may result in one-third of the new areas in the east, attaining the PM_{2.5} standard without additional local controls

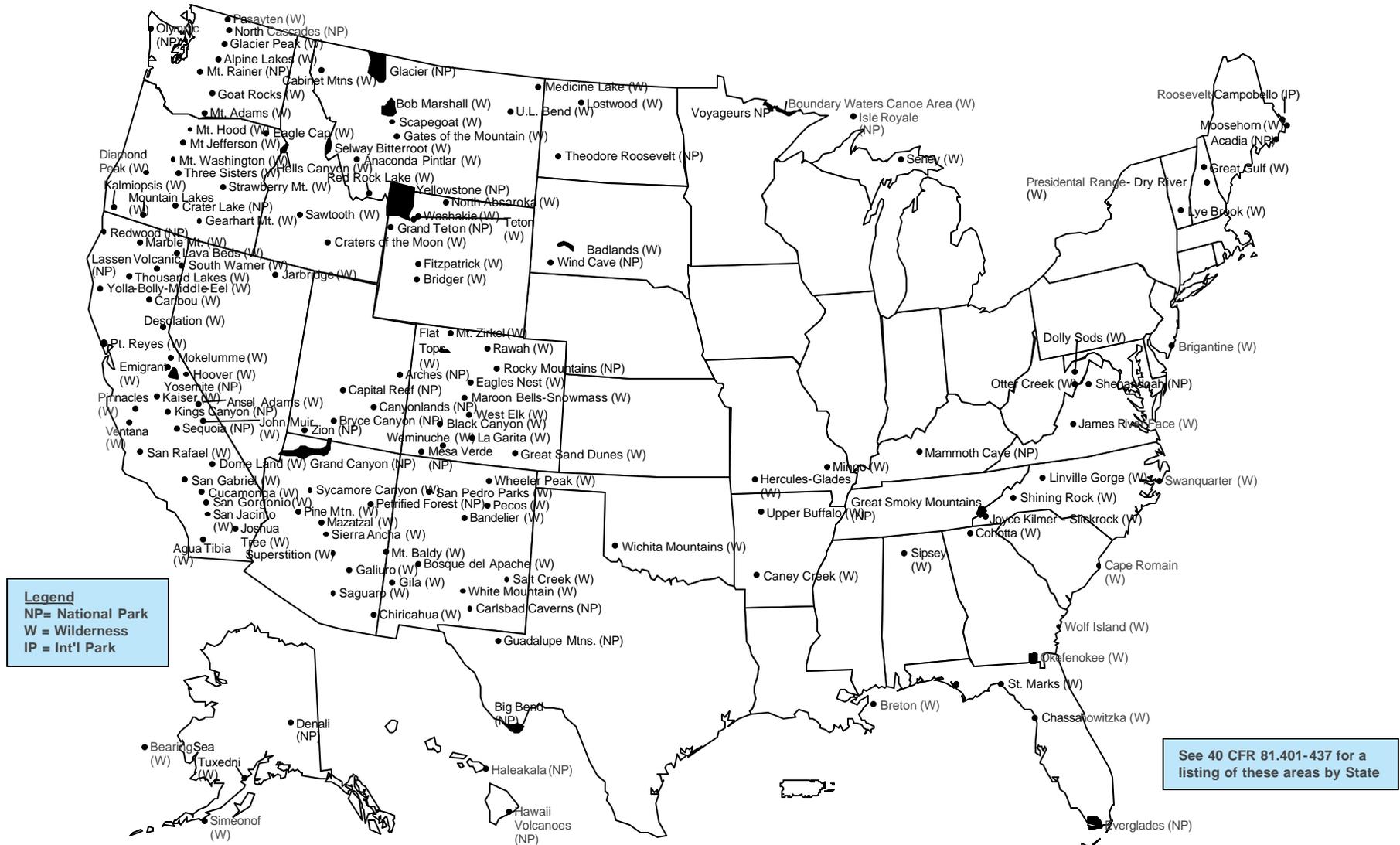
Periodic review of PM criteria and standards

- **Determination of status of standards precedes designation of PM_{2.5} nonattainment areas and imposition of any new controls related to PM 2.5**

History of Visibility Program

- **1977: Section 169A of CAA - National goal to remedy existing and prevent future impairment in 156 Class I areas**
- **1980: Regulations to address "reasonably attributable" impairment at specific Class areas**
 - **Deferred action on regional haze**
- **1980's: Develop technical tools, IMPROVE monitoring program, NAPAP**

Map of 156 Mandatory Class I Federal Areas



History of Visibility Program

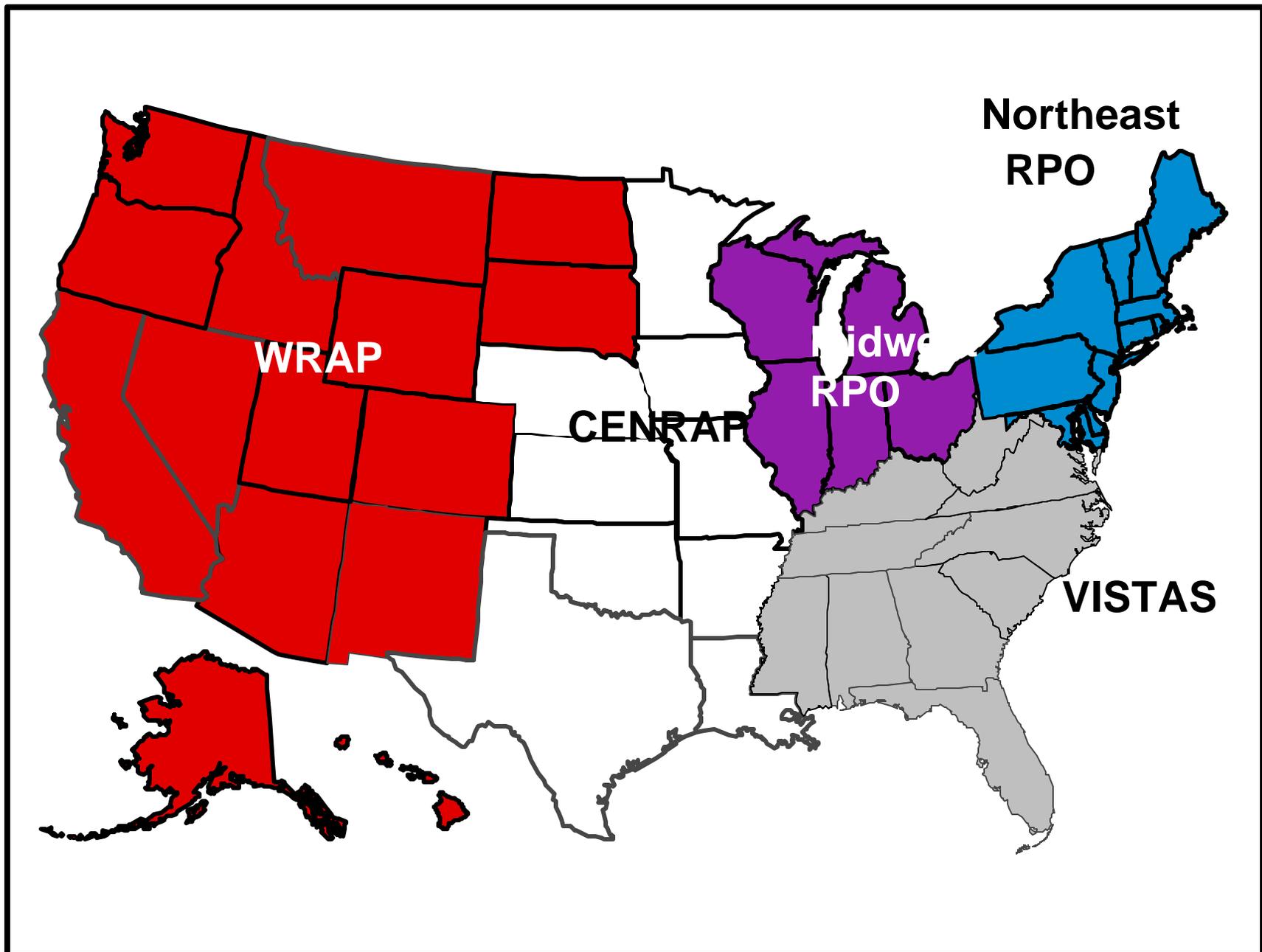
(continued)

- **1990: CAA Amendments added sec. 169B; greater emphasis on regional haze**
 - **Establish Grand Canyon VTC**
 - **Regulations 18 months after GCVTC report**
- **1993: NAS Report on Visibility**
- **1996: GCVTC report**
- **1997: Proposed regional haze rule**
- **1999: Final regional haze rule**

Regional Haze Program

- Reasonable progress goals for each area
- Consider rate to achieve natural conditions in 2064
 - Long-term strategy to meet goals
- Best Available Retrofit Technology
- Baseline conditions: 2000-2004
- Track progress on 5-year average of 20% worst and best days
- Progress review every 5 years
- Revise goals and strategies in 2018 and every 10 years thereafter

Regional Planning Organizations



Regional Planning Organizations *(Continued)*



- **Western States - head start since building off Grand Canyon Visibility Transport Commission work**
- **FY 2000: Congress provided \$4,600,000**
- **FY 2001: Congress provided \$8,000,000**
- **Tribes get involved**

What is the status of 1-hr Ozone NAAQS Nonattainment Areas?



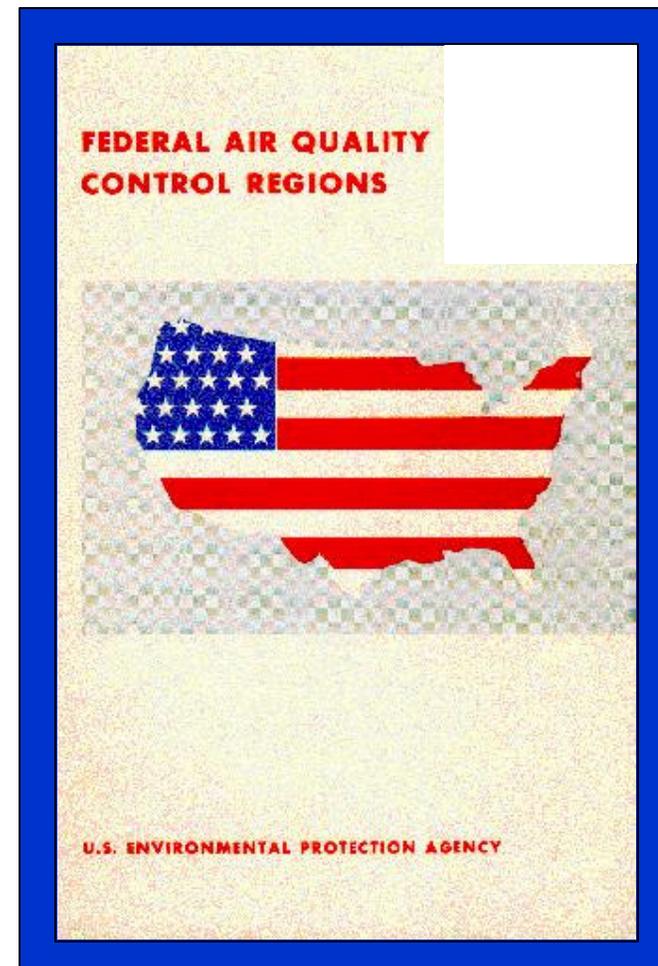
Let's look

- *a little designation history*
- *who's designated NA*
- *who's currently violating ...1-hr*

1st some history Air Quality Control Regions ... the predecessor of EPA's formal nonattainment designations.

**AIR QUALITY CONTROL REGIONS ...
1ST DESIGNATED IN LATE 1960-EARLY 1970S**

*“Regional air sheds” with common
air quality characteristics...*



Next designations in 1978 and 1991

AIR QUALITY DESIGNATIONS PROMULGATED ... 1978 AND 1991

March 3, 1978

Part V

federal register

**Environmental
Protection Agency**

■

40CFR Part 81
Air Quality Control
Regions, Criteria,
And Control
Techniques

Attainment Status
Designations

Monday, September 11, 1978
Part V

federal register

**Environmental
Protection
Agency**

■

40CFR Part 81
Air Quality Control
Regions, Criteria,
And Control
Techniques

Attainment Status
Designations

federal register

Wednesday
November 6, 1991

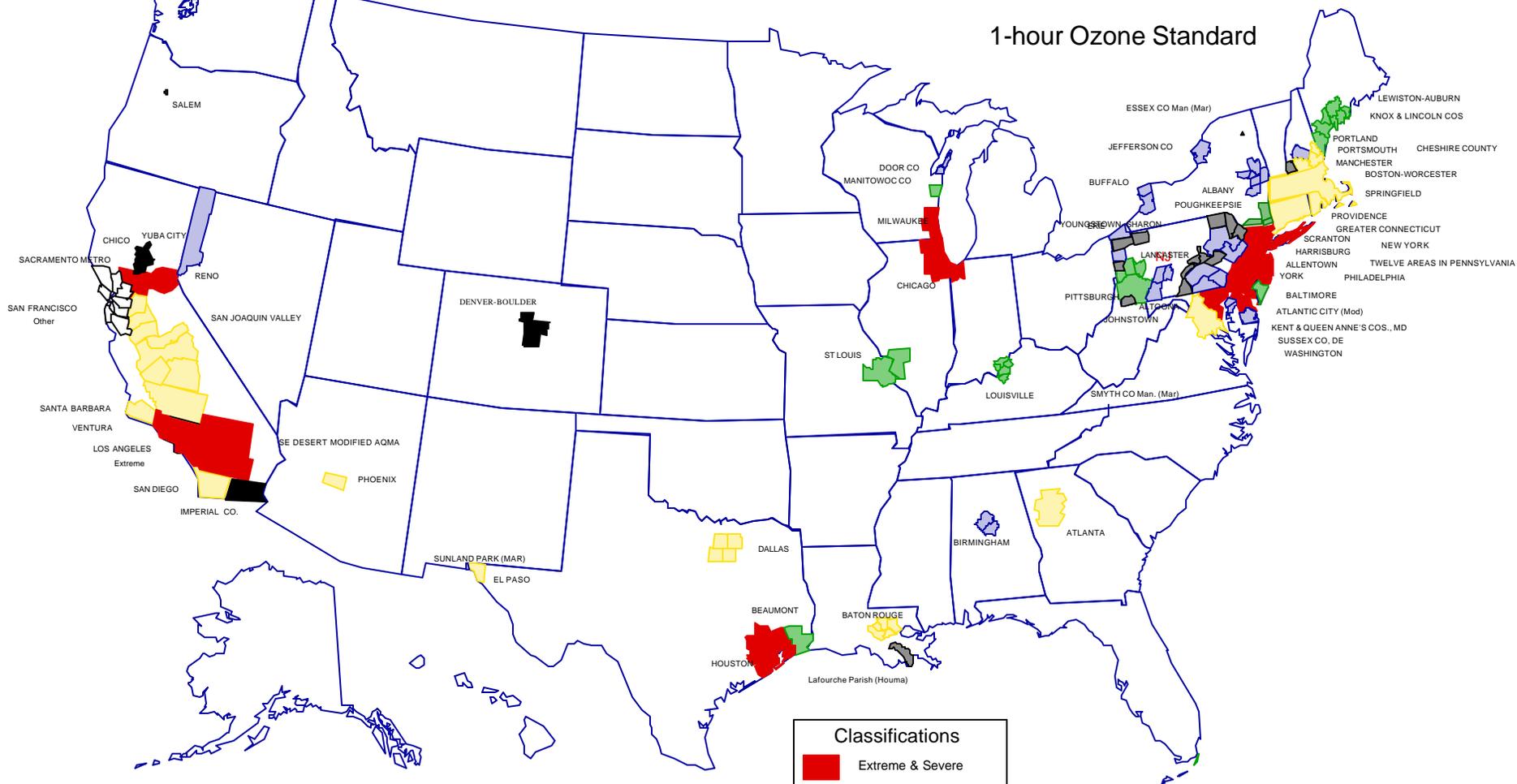
Part II

**Environmental
Protection Agency**

40CFR Part 81
Air Quality Designations and
Classifications; Final Rule

Ozone Nonattainment Areas 1-hr Ozone NAAQS

January 16, 2001



San Francisco is Classified Other

Classifications

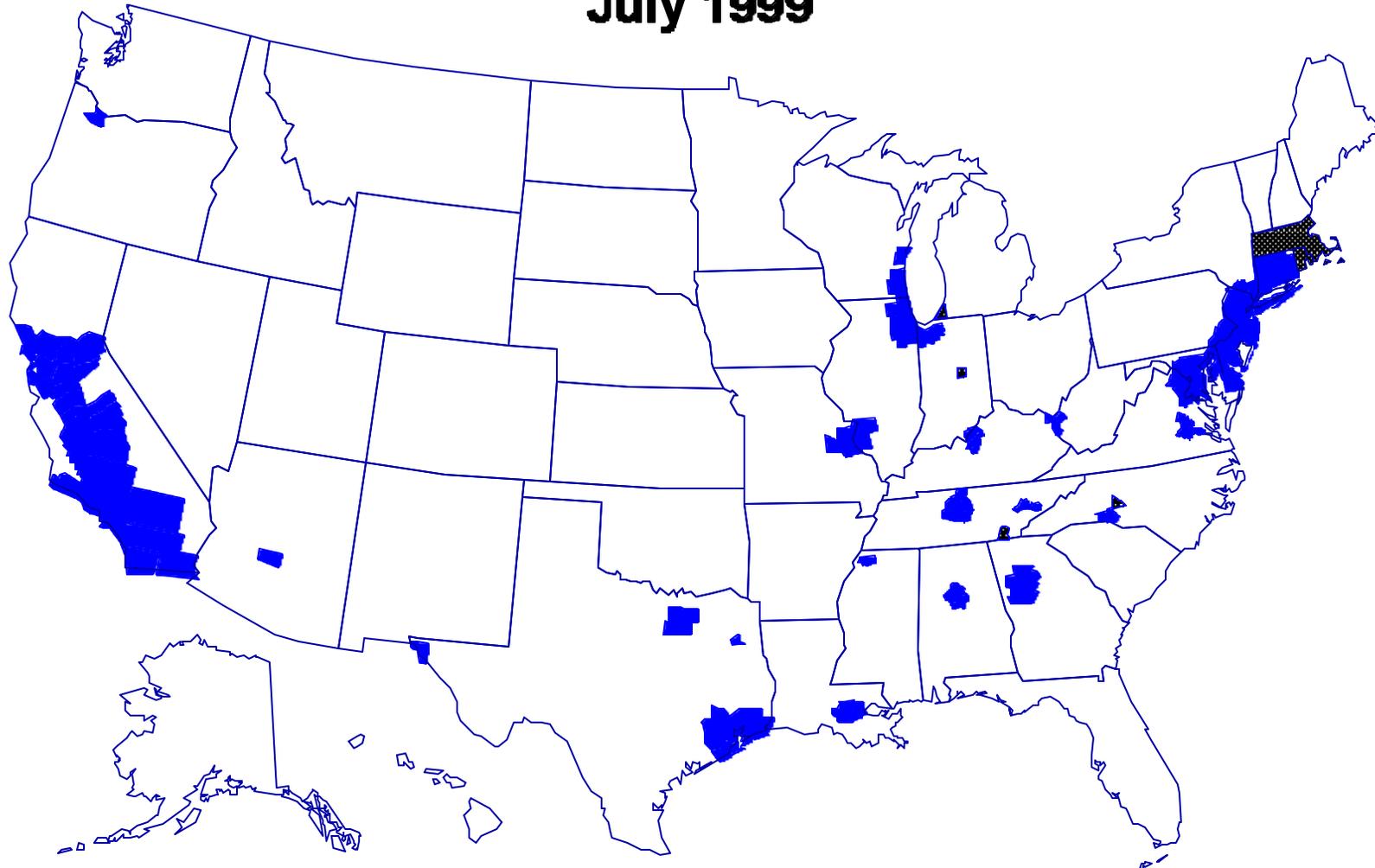
- Extreme & Severe
- Serious
- Moderate
- Marginal
- Sec 185A
- Incomplete/No Data

- INCOMPLETE/NO DATA AREAS IN PENNSYLVANIA:**
- | | |
|-----------------------|--------------------|
| CRAWFORD COUNTY | PIKE COUNTY |
| FRANKLIN COUNTY | SCHUYLKILL COUNTY |
| GREENE COUNTY | SNYDER COUNTY |
| JUNIATA COUNTY | SUSQUEHANNA COUNTY |
| LAWRENCE COUNTY | WARREN COUNTY |
| NORTHUMBERLAND COUNTY | WAYNE COUNTY |

Who's not meeting the 1-hr Ozone air quality standard?

Areas Violating the 1-hour Ozone Standard 1996-98

July 1999



93 Million People Live In Areas Violatin the 1-hour Ozone Standard 1996-98

How is the 1-hr Ozone NAAQS Implemented in Nonattainment Areas?



Let's explore ...

Designations ... Inform People and Begin the Air Quality Planning Process

Two possibilities for designations



- **Attainment/Unclassifiable ... keys....**
 - No violating monitors or incomplete data
 - Not contributing to violations nearby
- **Nonattainment ... keys**
 - 3 years of complete ozone data
 - Violating monitors
 - Contributing to nearby measured violations
 - Part of or near to an area with violating monitors

Fundamental thinking for ozone nonattainment ...



Nonattainment Determination Must Include Boundaries

- **Ozone is an airshed issue**
 - **Ozone not directly emitted**
 - **Formed when VOC and NO_x interaction in sunlight**
 - **Influenced by weather ... heat critical (summer problem)**
 - **Precursors may be transported long distances**
 - **After formation ozone is also transported**
- **Need to determine size of airshed that is affected**
 - **Sources of emissions? Where located?**
 - **Large cities start with (C)MSA as a surrogate for airshed**
 - **Adjust according to factors in guidance**

What does EPA consider important ...

Factors for Consideration

- **Emissions and air quality in adjacent areas**
- **Population density & urbanization including commercial development (including adjacent areas)**
- **Ozone air quality data What it represents... local or larger areas (urban or regional scale)**
- **Location and magnitude of emission sources ... in and nearby the area**
- **Traffic and commuting patterns**
- **Expected growth (including extent, pattern and rate of growth)**

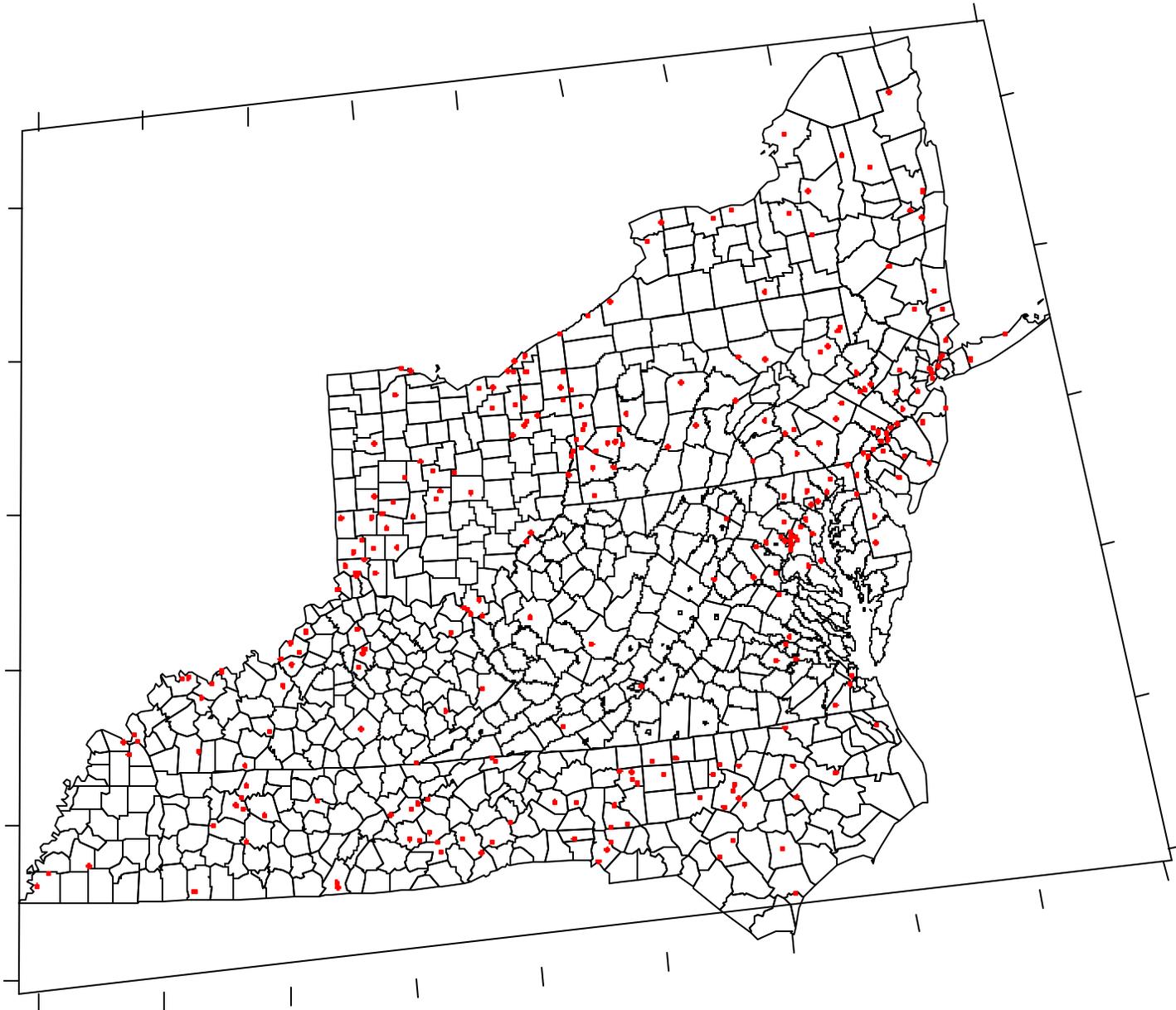


Factors for Consideration ... (Continued)

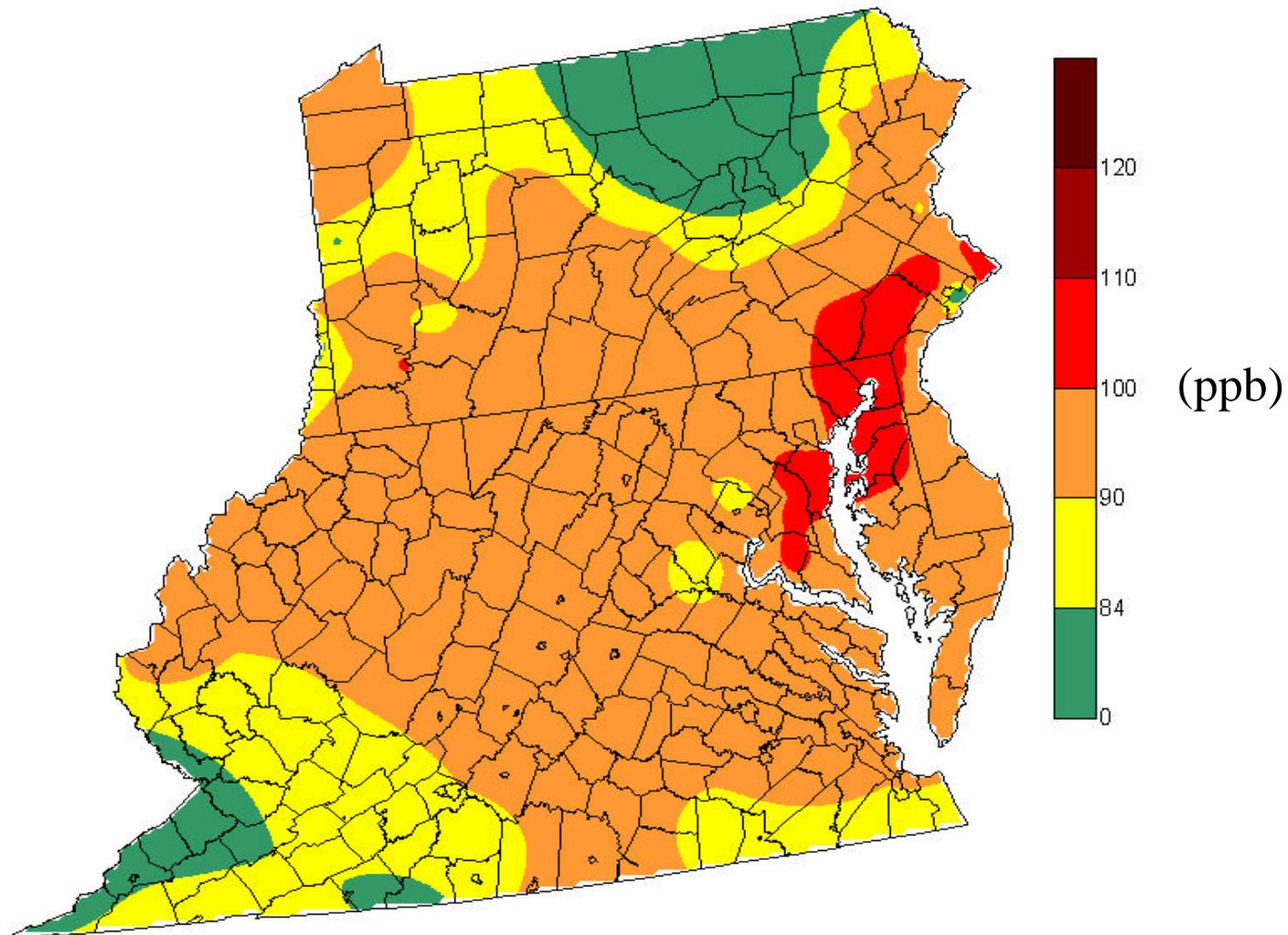
- **Meteorology (weather and transport patterns)**
- **Geography/topography (mountains or other air basin boundaries)**
- **Jurisdictional boundaries**
- **Level of control of emission sources**
- **Regional emission reductions (e.g., enforceable regional strategies)**



Ozone Monitoring Network used for Kriging

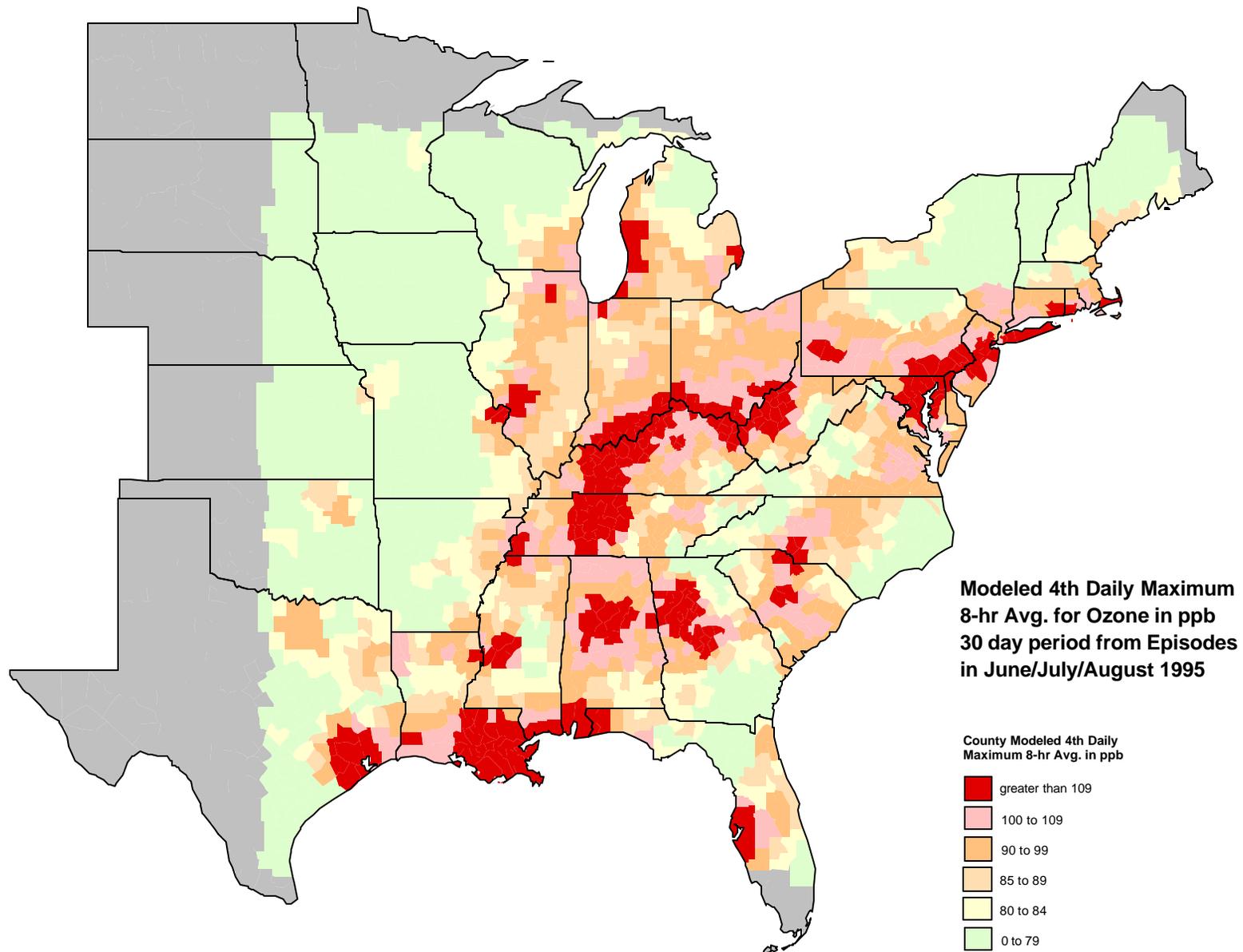


1999 Ozone Design Values: Kriged Contour Map



Modeled 4th Daily Maximum 8-hour Average for Ozone

30-day Period from Episodes in June-July-August 1995



CAA mandated classifications of 1-hour Ozone Nonattainment Areas....

OZONE CLASSIFICATIONS

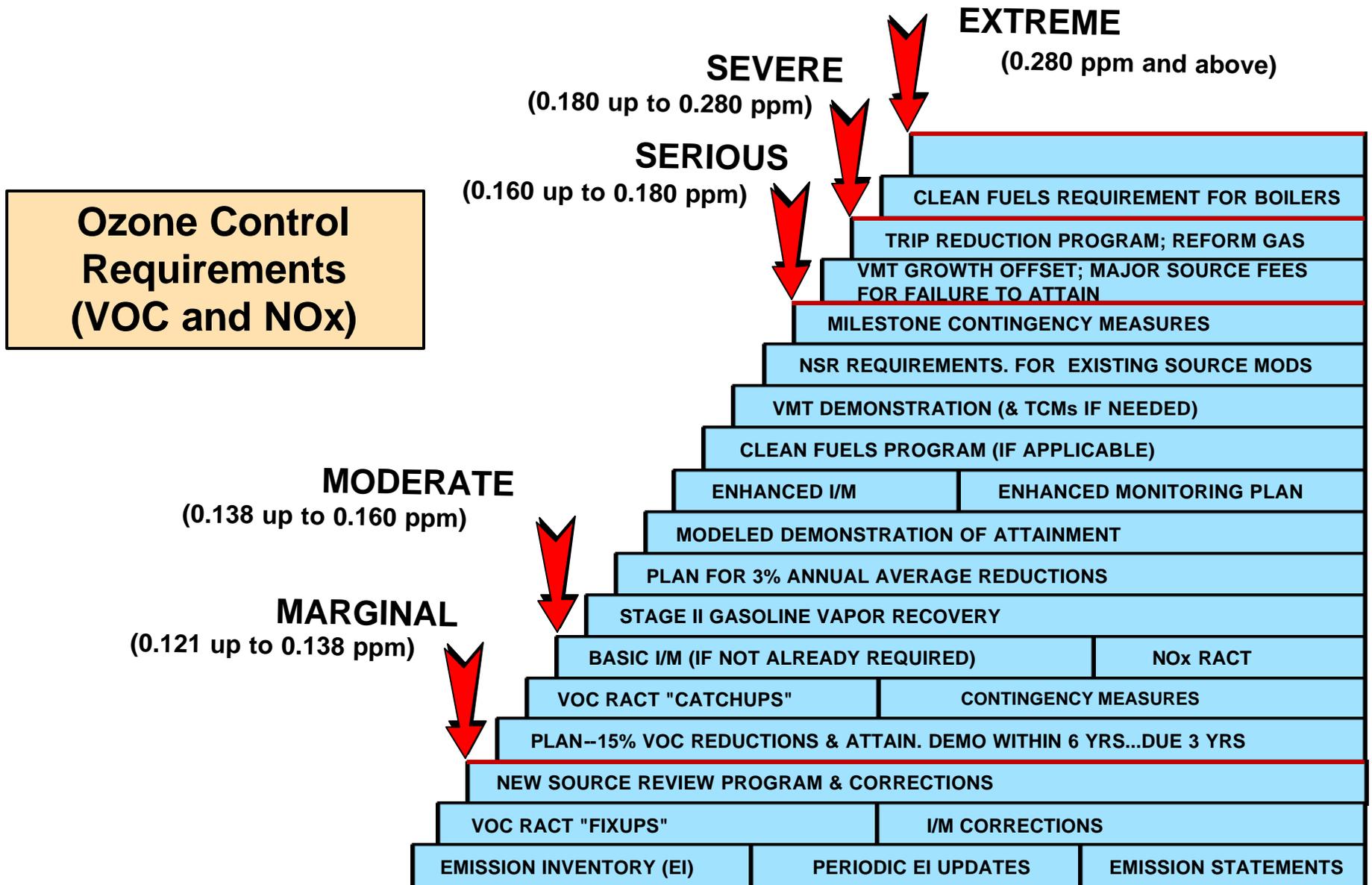
CLASS	LEVEL (ppm)	ATTAIN. DATE
MARGINAL	.121 up to .138	1993
MODERATE	.138 up to .160	1996
SERIOUS	.160 up to .180	1999
SEVERE-15	.180 up to .190	2005
SEVERE-17	.190 up to .280	2007
EXTREME	.280 and above	2010

Let's review.....



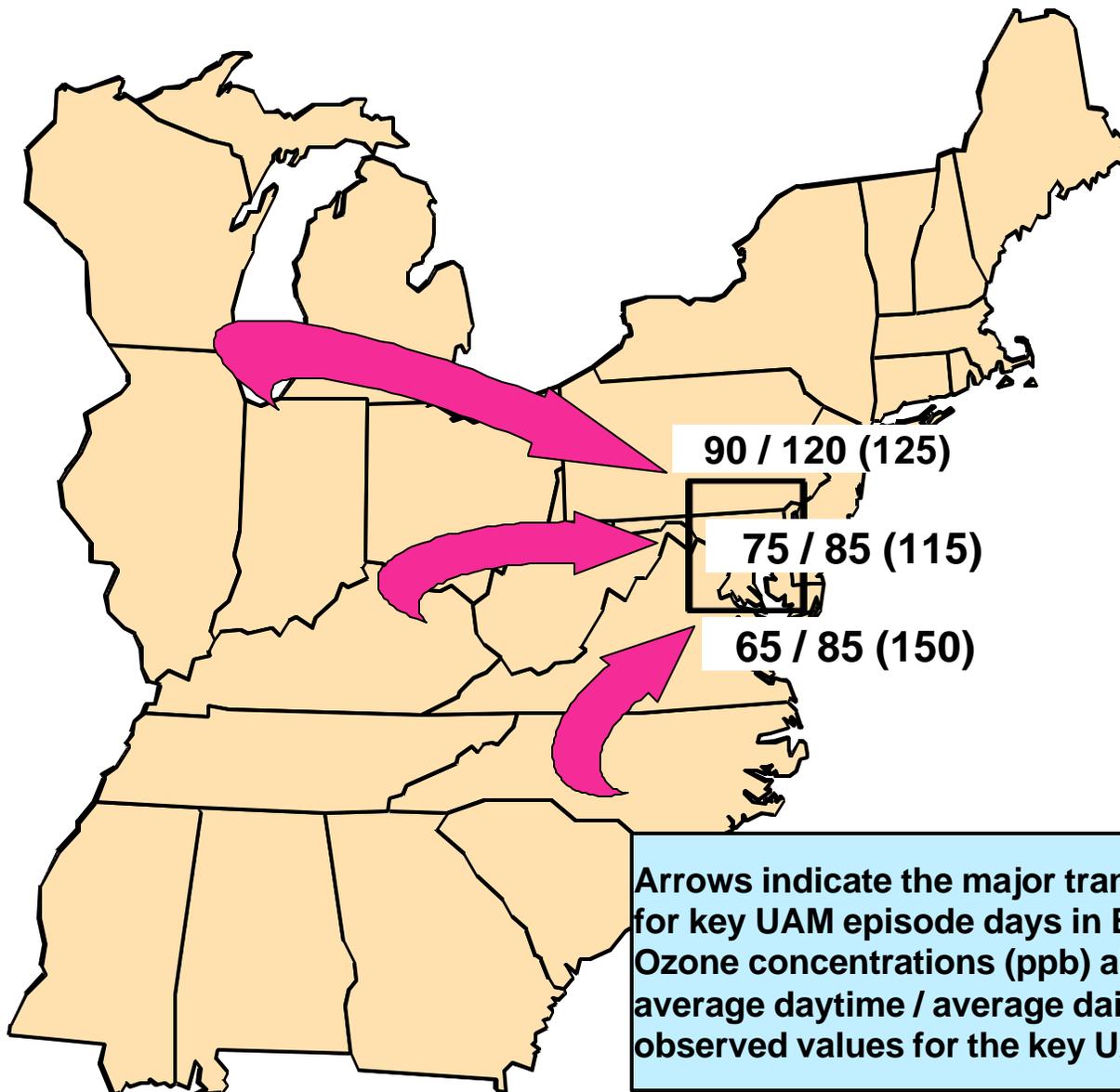
Required control measures and attainment dates are "tied" to an area's classification....

Overview of the CAA 1-hr Mandates by Classification ...



Regional Ozone Issue...Transport

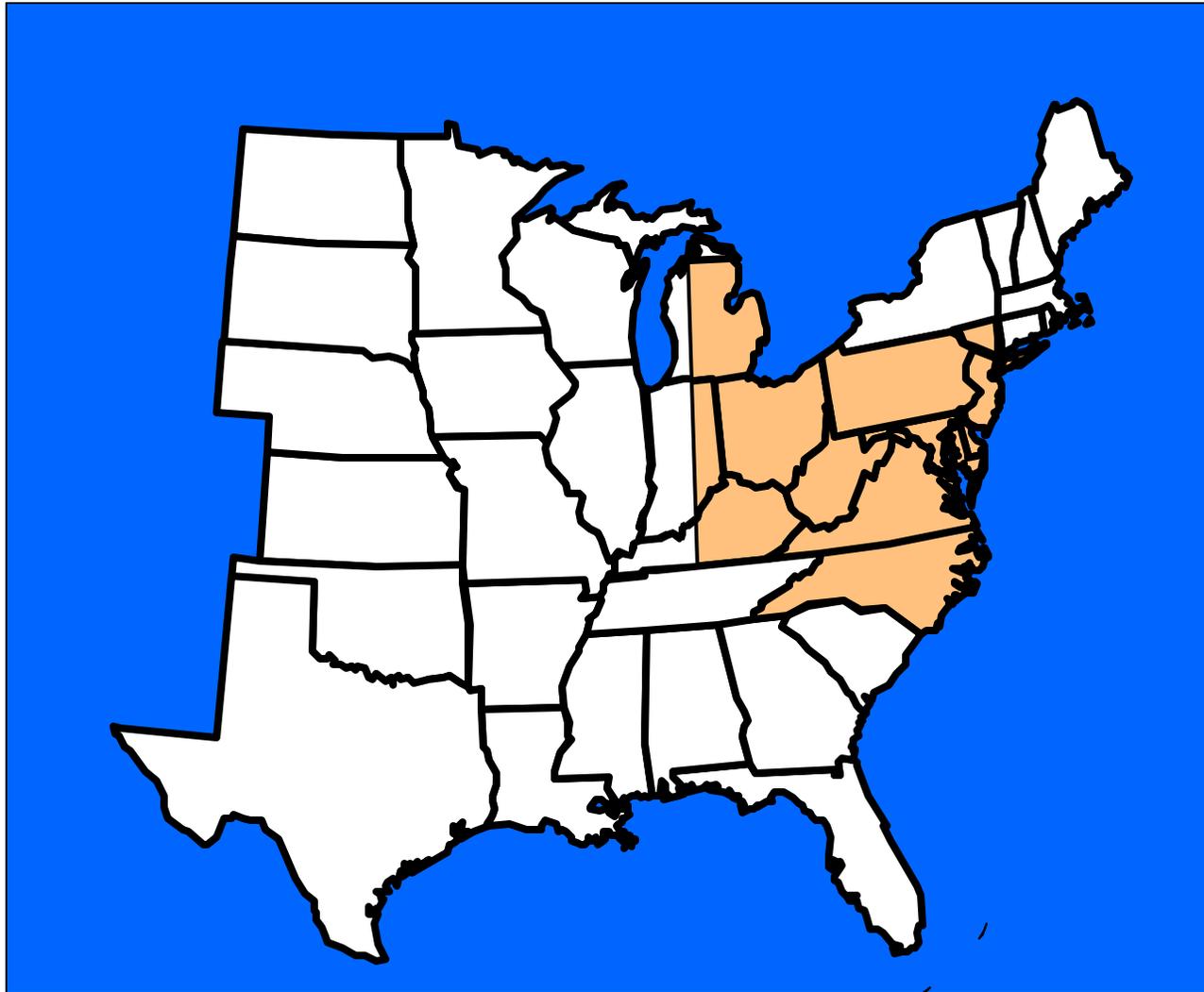
Example...



Major Transport Patterns
for Baltimore-Washington, DC

Arrows indicate the major transport wind directions for key UAM episode days in Baltimore/Washington, DC. Ozone concentrations (ppb) along the inflow boundaries are average daytime / average daily max (highest daily max) observed values for the key UAM episode days

States Affected by Final Section 126 Action 1-Hour NAAQS



Covered by Section 126 action

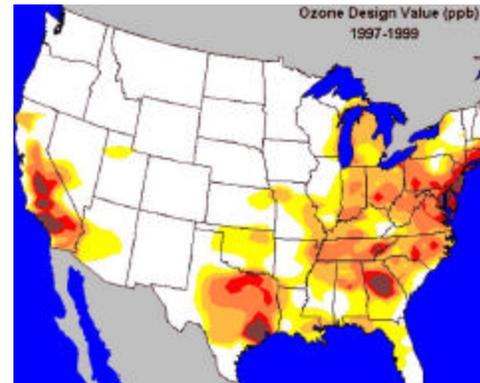


Other Ozone Transport Assessment (OTAG) States

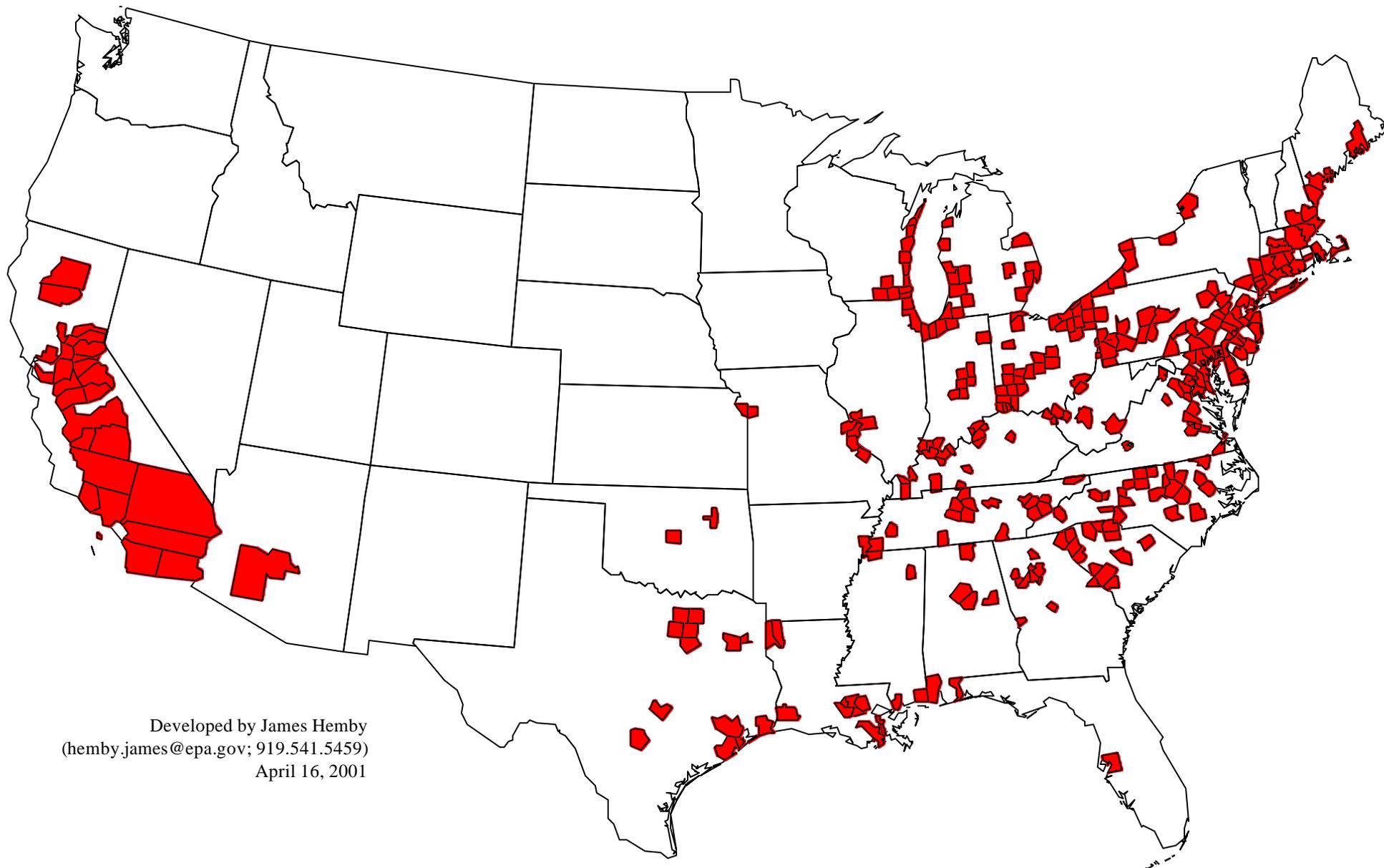
8-Hour Ozone NAAQS Status & Implementation



Let's look



Counties Violating the 8-Hour Ozone Standard 1997-99



Developed by James Hemby
(hemby.james@epa.gov; 919.541.5459)
April 16, 2001

8-Hour Ozone NAAQS Implementation Chronology

7/97 Final NAAQS for Ozone & PM

5/99 Court of Appeals in DC ruled against
NAAQS

2/01 US Supreme Court upheld NAAQS, but
ruled against EPA implementation
approach—EPA must consider CAA
subpart 2

11/01 Final briefs on preserved issues

Spring/Summer 2002 Expect court decision

8-Hour Ozone NAAQS Implementation Chronology (continued)

Currently EPA is --

- **Dealing with UV-B issue**
- **Considering how to implement 8-hr Ozone NAAQS – no direction from court**

For example

1 or 2 NAAQSs?

Classifications?

8-Hour Ozone NAAQS Implementation Chronology ... *(Continued)*

Example Options:

1-Standard Approach

- **Implement 8-hr**
- **Revoke 1-hr**

2-Standard Approach

- **Attain 1-hr**
- **Then attain 8-hr**

Classify based on 1-hr design value

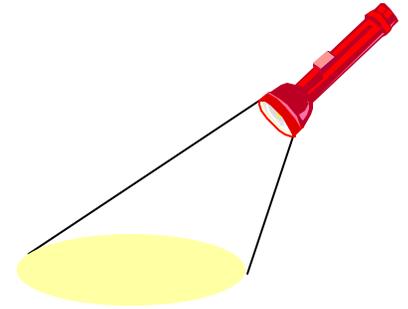
Classify based on 8-hr design value



Next Steps on 8-Hr Ozone Implementation

- **Continue all current planning and implementation efforts to attain the 1-hr NAAQS**
- **Seek input from tribes and states on an 8-hr implementation strategy**
- **Mid-2002 Develop and propose an implementation strategy rule**
- **Early/mid-2004 Final implementation strategy rule and propose attainment/nonattainment designations**
- **2005 Finalize designations**

Critical issues needing input for resolution



- **Structure of implementation policy ... subpart 1 vs. subpart 2**
- **Nonattainment classification structure**
- **Mandatory control measures vs. flexibility**
- **Reasonably available control measures & progress requirements**
- **Attainment dates**
- **Credit for early reductions**
- **New source review (NSR) and transportation conformity**
- **Planning for and dealing with ozone transport**



What did we learn ... ?

- **PM10 Standard being implemented; limited number of nonattainment areas**
- **The 1-Hour Ozone Standard: 0.12 ppm set to protect public health and welfare.**
 - **Many areas attained the standard over the last few years; several major areas have not.**
 - **CAA specifies an increasing number of control requirements depending on how much an area exceeds the standard.**
 - **Attainment plans--originally due 11/94--were deferred in the East to allow assessment of regional transport and consideration of regional controls.**

(cont'd)





What did we learn ... ? (Continued)

- **8-hr Ozone & PM_{2.5} NAAQS--**
 - Challenged in court;
 - **Ultimately upheld constitutionally;**
 - **Further litigation effort ongoing**
 - **EPA contemplating implementation options & gathering input from stakeholder**
- **PM_{2.5} NAAQS—**
 - **Not being implemented yet**
 - **Air quality data being gathered**
 - **NAAQS being reviewed**



Now let's move to Session 8 ...

**Focus on selected ozone and
PM policies**